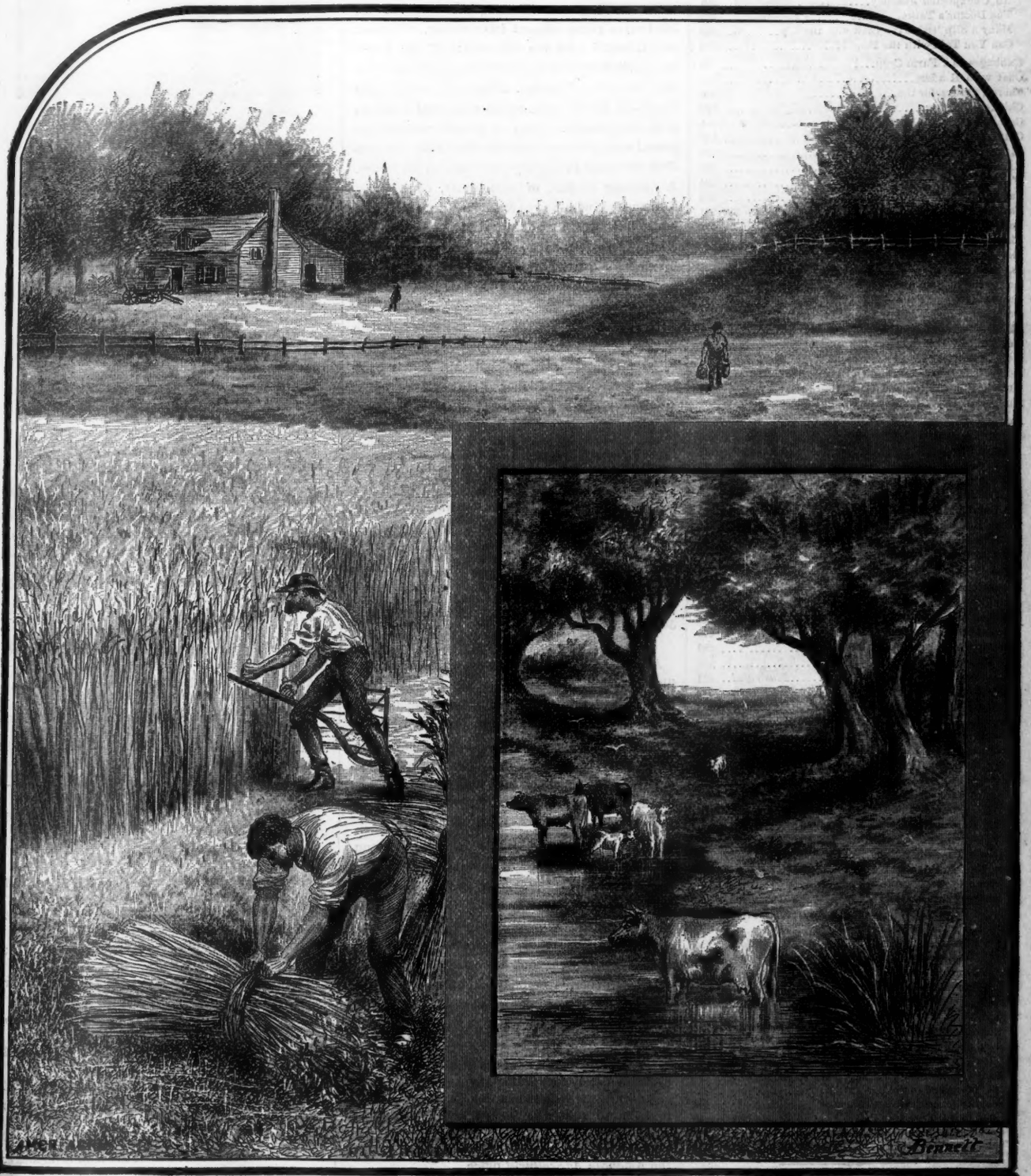
AMERICAN AGRICULTURIST

FOR THE

FARM · GARDEN · & · HOUSEHOLD

"AGRICULTURE IS THE MOST HEALTHFUL, MOST USEFUL, AND MOST NOBLE EMPLOYMENT OF MAN."—WASHINGTON.

VOLUME XLIII.—No. 7. NEW YORK, JULY, 1884. NEW SERIES—No. 450.



Yer Harvests still the ripening summer yields.—BRYANT.

Drawn and Engraved for the American Agriculturist.

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ENTERED AT THE POST OFFICE AT NEW YORK, N. Y., AS SECOND CLASS MATTER.

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For Humbug exposures, book reviews, business announcements, and other matters of special interest, see the last pages of this number of the Am. Agriculturist.

JULY DAYS

The full ripe grain is bending
In waves of golden light;
The new-mown hay is sending
Its sweets upon the night;
The breeze is softly sighing,
To cool the parched flowers;
The rain, to see them dying,
Weeps forth its gentle showers.

THOMAS J. OUSELEY.

After having made a world-wide reputation as the editor of "The Genesee Farmer," Mr. Joseph Harris, for twelve years, without intermission, "Walked and Talked" with the subscribers of the *American Agriculturist*, thereby instructing and entertaining a vast army of readers. After an interval of eight years, Mr. Harris again resumes editorial relations with this journal. Many of his old readers have passed away; but probably there are fully one hundred thousand to warmly greet him on his return. A life-long student of agriculture, educated at Rothamsted, with Lawes & Gilbert, he resumes his labors here, with the additional rich experience and study of these eight years. Dr. George Thurber, who for nearly a quarter of a century has stood at the head of our editorial force, Dr. Byron D. Halsted, who for six years has ably seconded Dr. Thurber, Andrew S. Fuller, and all the other able associate writers, who have carried the *American Agriculturist* to its present success, welcome Mr. Harris back to his former field of labor.

Writers for the July American Agriculturist.

Dr. George Thurber, N. J.	R. G. Newton, Dak.
Joseph Harris, N. Y.	Rev. William Clift, Conn.
Dr. B. D. Halsted, N. J.	M. J. G. Hammack, Ill.
Col. M. C. Weld, N. J.	J. M. Stahl, Mo.
Andrew S. Fuller, N. J.	Alfred Trumble, N. Y.
Prof. S. R. Thompson, Neb.	B. W. Jones, Ga.
Dr. D. D. Slade, Mass.	W. D. Boynton, Wis.
Henry A. Haigh, Mich.	I. E. Charles, Ind.
Dr. Charles W. Dabney, N.C.	E. E. Rexford, Wis.
R. L. Harrison, R. I.	James Richardson, N. Y.
L. D. Snook, Fla.	Mrs. E. S. Welsh, N. Y.
W. Z. Hutchinson, Mich.	Ethel Stone, N. J.
Theodore Goodrich, Ill.	Nellie Burns, N. H.
M. E. Bamford, Cal.	Amelia H. Botsford, N. Y.
L. C. Root, N. Y.	Agnes (Carr) Sage, N. Y.
John Bartlett, Ont.	David W. Judd, N. Y.

As in the past, so in the future, we shall make the illustrations a great feature of the *American Agriculturist*, and thereby, as for twenty years, aim to both instruct and please hundreds of thousands of homes. Will all contributors, as far as may be, accompany their articles with plain sketches and designs, which so much aid the reader in understanding the subjects treated.

The *American Agriculturist's* Microscopes, manufactured exclusively for us, and obtained through no other source, are proving a grand success (see another page). At this period of the year they are valuable for the examination of flowers and plants, and the various injurious insects that prey upon the grains, fruits, and flowers. Every farmer, every gardener, everybody should have one of these beautiful new microscopes. Elsewhere read the "free terms" on which it can be procured.

All subscribers will confer a great favor upon us, by immediately forwarding any Autograph letters, any documents with the ear-marks, or any Appeals to them to subscribe to any other journal—so worded as to plainly indicate that their names may have been dishonorably or dishonestly secured from the *American Agriculturist* office.

See page 312 for matters of importance to readers of the American Agriculturist.

Advance.
Keep a record.
Tar sheep's noses.
Take your holiday.
Work for success.
Weed out poor hens.
Drink little ice-water.
Observe rigid cleanliness.
Insure the farm buildings.
Hot weather favors vermin.
A pig loves a run in the clover.
Late cabbages require rich soil.
Buckwheat mellows cloddy lands.
Give a frequent change of pasture.
Unclean stables breed bad disorders.
A hundred-day pig may be very profitable.
Pure drinking water is of the first value.
Muzzle the horse when the corn gets large.
Harvest the wheat in the "doughy" state.
Young stock need a separate feeding-place.
Timber cut in mid-summer is most durable.
Improve the live stock through better males.
Protect the work horses from flies with sheets.

Ripe, woody, late cut grass does not make good hay.

Sheep need shade and shelter, as well as food and water.

Top-dress newly mown meadows with fine manure.

Cultivating the corn prepares the soil for future crops.

A clover sod turned under is a heavy coat of manure.

Poor layers and bad mothers should go to the block.

Salt the stock once a week; not necessarily on Sunday.

Dry earth makes good bedding for cattle in midsummer.

Cut millet or Hungarian grass before the seed gets ripe.

Give work horses frequent and small drinks of cool, pure water.

Flat turnips sown now, will yield excellent food for sheep in late autumn.

Sow buckwheat for second crop, or to fill out where another has failed.

Place a wet cloth in the crown of the straw hat; it may prevent sun-stroke.

Superphosphate is a most acceptable fertilizer for ruta bagas sown this month.

Manure begins to draw interest as soon as spread, payable at the next harvest.

Select a portion of the corn-field for seed, and give it extra attention. Breed up the corn.

Repeated sowings of fodder-corn make a continuous supply of green feed at the close of the growing season.

The root crop has superseded the summer fallow in the rotation, and the use of the land is no longer lost for a whole year.

Horses as well as boys enjoy an evening bath. They are profited by it if lasting only a few minutes, and they are subsequently rubbed dry.

Orchard and Fruit Garden.

During the present month and the next, the orchardist and gardener finds work less pressing than at any other time, and he is wise if he takes a vacation. A week at the sea-side, or on the shore of an inland lake or river, will do wonders for recruiting one for the work of the autumn months. Go among the fruit growers and gardeners, see what others are doing, and how they do it. Such visits are useful to both giver and receiver.....Insects demand attention every month. The Apple-worm is noted elsewhere. The Apple-borer and the Peach-borer must be looked for; if their sawdust is found, or there is a depression in the bark of young trees, cut for and probe out the worm. ....The Currant and Gooseberry bushes, if attacked by the worm, must have powdered White Hellebore, a tablespoonful thoroughly stirred in a pailful of water, and freely showered to wet the leaves..... The beetles and large caterpillars upon the grape-vines may be picked off by hand.....If a Strawberry plant is seen to wilt, search at its root for the White Grub, and kill it before it can go to another plant.....The shiny, green Slug upon the leaves of pear and cherry trees, may be destroyed by dusting them with air-slaked lime, or wood ashes..... Blight is often destructive to the pear. All that can be done is to remove the blighted portion, whether a small branch or the whole tree, and burn it.....Budding may be done as soon as buds are mature, and the stocks are ready. The cherry is usually the first, followed by the plum and pear. ....Summer Layer the Grape.—Shoots of this season that are sufficiently hardened, may be bent down and have a portion buried in the soil; roots will soon form upon it.....Wind Falls.—If pigs are not pastured in the orchard, the fallen fruit should be picked up and fed to them.

Kitchen and Market Garden.

Success in keeping down weeds, depends upon attacking them while they are small. A sharp rake is most effective if applied early. The use of the cultivator must be supplemented by hand weeding in the rows.....Asparagus tops make a dense shade, and keep down small weeds; if any large ones appear, pull them.....Sowing seeds for Succession Crops, and setting out plants for late ones, will be the chief work this month. Sow Early Beets (see p. 284). Of Bush Beans, the Refugee is preferred for late planting. Sweet Corn, of early quick growing varieties, may be planted for table and for drying.....Sage, Thyme and other sweet herbs, may be set out, also late Cabbages, Cauliflower, etc.....Celery is to be set out from the seed bed. If ground can be used from which a heavily manured early crop has been removed, all the better; otherwise the soil must be well manured. Mark out the rows, three, or better, four feet apart, setting the plants six inches apart in the rows, taking care to set them no deeper than they stood before. Press the soil gently and firmly to the roots with the feet, and if it be dry, give an abundant watering. Afterwards keep the celery clear of weeds..... Ruta Bagas and other turnips, may be sown as indicated elsewhere.....When vines of Lima Beans extend beyond the tops of the poles, nip off their ends. ....Tomato vines must be kept tied up to the trellis; remove all badly shaped fruit; hand-pick and kill the great green worm.....Egg-plants.—Keep the potato bug from them, and place straw under the fruit to keep it from the ground.....Sweet Potato vines should not be allowed to take root at the joints; move them at each hoeing.

Flower Garden and Lawn.

When the grass is growing rapidly, it may be mown frequently; on the other hand, if a drouth checks the growth, the grass may be injured by using the mower too often. Large weeds should not be allowed to get established; take up docks, plantains, etc., as soon as discovered. An old thin chisel fixed to a handle, makes an excellent "spud" to aid in uprooting large weeds. Beds planted in Ribbon Style, need care, and if plants in the different lines run into one another, they must be cut away to keep the outline distinct.....Perennial Plants, except in rare cases where seeds are wanted, should have the flower clusters cut away as soon as they begin to fade.....Dahlias, Gladioluses, Tuberoses, etc., will need stakes; let them be inconspicuous, and placed out of sight.....Annuals of all kinds will keep in bloom much longer if not allowed to ripen their seeds.

Award of Prizes.

The following persons were the successful competitors for the prizes offered in February for essays upon Feeding and Care of Farm Animals: First prize ($50), to "A Western Farmer"—Mr. Fred. Grundy, Morrisonville, Ill. Second prize ($40), to "Stock-breeder"—George Ashbridge, West Whiteland, Pa. Third prize ($30), to "Zero"—F. A. Deekens, Federalsburg, Md. We will favor our readers with a portion, at least, of the first prize essay in the next issue of the *American Agriculturist*. We remind all writers that they have until September 1st to compete for the prizes for short juvenile stories, offered in June last.

Cabbages as a Farm Crop.

JOSEPH HARRIS.

Last year millions of cabbages were imported into this country from Europe; and such was the case in 1882. They are used largely for Saurkraut. In foggy weather cabbages are liable to heat or mould on the steamers, and the expense of getting them here is very great. The price in the New York Market ranged from ten to fifteen cents per head. Prices in the inland cities and villages were still higher. A farmer can well afford to raise cabbages for three cents a head. And the crop has this great advantage—if it cannot be sold it may be fed out on the farm to cows, sheep, or pigs.

For late autumn or winter use, cabbages can be planted from the last of June, until the middle of August. The large varieties, such as the Large Late Drumhead, Premium Flat Dutch, and Short-stem Drumhead, should be planted as early as convenient in July. If it is necessary to plant late in the season, select the earlier varieties. For this purpose there is nothing better than the Early Winningstadt.

As a farm crop, cabbages should be planted in rows, three feet apart, or sufficiently wide apart to admit the use of a horse-hoe, or cultivator. Low swampy land that is too wet for corn, can often be planted to cabbages with great advantage in July. If the land is smooth and clean, the plants may be set in rows two and a half feet apart, but if rough, and not in fine condition, make the spaces wider.

It is very little work to set out an acre of cabbages. Mark out the land as you would for planting corn, and instead of dropping corn, set out a cabbage plant. The better way is to mark the land both ways, and let a boy drop the plants where the rows cross. If the land is in good order, a man and boy should set out at least an acre a day. If you have not cabbage plants of your own, they can be purchased at very low prices—say from one dollar to two dollars per thousand, according to the quantity ordered. You should get more plants than you need, in order to have enough to replace any that may fail to grow. If you plant three feet apart each way, there should be four thousand eight hundred and forty plants on an acre. If three feet by two and a half feet, five thousand eight hundred and nine per acre; if three feet by two feet, seven thousand two hundred and sixty plants per acre; if two and a half feet by two and a half feet, which will answer for Winningstadt cabbages, there will be six thousand nine hundred and seventy plants per acre. When the plants get fairly started, nothing more is required, except to use the cultivator freely between the rows, and to dress out the weeds around the plants with a hoe. Thorough cultivation is the essential point.

If you are afraid of the green worm, set out five acres instead of one acre. There will be about as many worms on the small patch as on the large one.

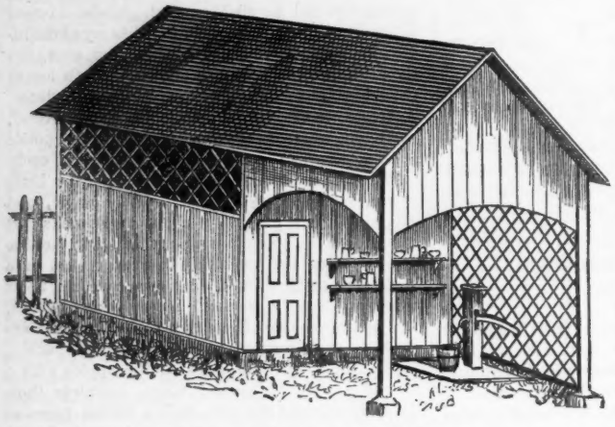
The Apple-Worm—The Codling-Moth.

From their letters of inquiry, it is evident that some of our correspondents think that the Apple-worm and the Codling-moth are different insects. It will simplify matters if they understand that the "worm" is the grub or larval state of the moth. This pest has been so general, and has so rapidly increased, that a few years ago it seemed to threaten to make orchard culture unprofitable in many localities. Recently, however, remedies have been devised which should encourage the fruit-grower to hope that he may successfully combat this, his most destructive enemy, and if their application can be made general, promise a better future for the orchardist. The life history of the insect may be briefly stated thus: In spring, about the time the fruit has "set," a little gray moth leaves the chrysalis in which it has been dormant all winter. As this moth flies only at night, it is rarely noticed, making its way to the young fruit, where it deposits a single egg in the calyx or blossom end of each.

The egg hatches in a few days, and the little worm eats its way into the young apple, and attains its full growth in about two weeks. It then leaves the apple by a hole it makes in the side and descends the tree. Finding a crevice, or a sheltering scale of bark, the worm conceals itself there, and spins a cocoon. In two or three weeks, the moths emerge from these cocoons, and are ready to go through the same performance again, laying their eggs and stocking the apples with a second supply of worms, which complete their growth, descend the tree, find a hiding place as before, and make their cocoons. Instead of leaving their cocoons in two or three weeks, as did the first brood, the moths do not issue from them until the following spring, in proper time to lay their eggs upon the recently set fruit. Of the fruit containing this second brood, a large share of it falls to the ground; the worms, when full grown, leave the fallen fruit, and if they find no shelter at hand, affording a hiding place, crawl back to the tree, ascend its trunk, and finding a secure place, make their cocoons. The methods of destroying the insect depend upon a knowledge of the facts here briefly stated. A most important addition recently made to the other modes of warfare, depends upon the fact that the apple, when young, is erect, with its calyx or blossom end upward. As the fruit grows and becomes heavy, it turns downward. Acting upon this fact, and the other, that the young worms enter the apple from the blossom-end, some Western orchardists have applied Paris Green, which poisons the worm, as it attemps to eat its way to the interior of the fruit. The tree is so abundantly showered with water in which the poison has been stirred, that a little will fall into each upturned blossom-end of the young apples. Very little Paris Green is required, a tablespoonful thoroughly distributed through (for it does not dissolve), a barrel of water is sufficient. The barrel is placed upon a wagon of some kind, and its contents showered into the trees by means of a force pump. The least particle of the poison kills the worm. So little is applied that no harm could result from the use of the poison did not the rains completely remove all traces of it. The season for poisoning is past, but there are other measures that may yet be taken. If the trunks of the trees were not scraped in early spring, let it be done at once; then apply a bandage of some kind around the trunk of each tree. Woollen fabric is best, old carpet answers well, but any rags will answer. The bands may be about six inches wide, long enough to go around the tree and lap slightly and be fastened by a single tack at the lapped portion, being careful to not drive it in so far that it cannot be readily removed. The worms will seek the shelter of these bands, and spin their cocoons. The bands are removed every ten days, and the worms or their cocoons crushed. They may be killed by hand or by passing the cloth through a clothes-wringer. The branches should be shaken, to cause wormy apples to fall, and these, and all those which drop spontaneously, should be picked up and fed to pigs, or the worms they contain otherwise destroyed.

A Southern Well-House and Bath-Room.

Few southern people in moderate circumstances would dispense with their bath-room. Instead of adjoining the sleeping room, as at the North, the bath-room is usually in a separate building, located near a spring or well. A very desirable bath-house and well-room combined, is shown in the engraving. The apartment containing the pump may be completely surrounded with lattice work, and when practicable, quick-growing vines should be trained over the lattice, giving the whole a cool, refreshing appearance. Instead of windows to



A WELL-HOUSE AND BATH-ROOM COMBINED.

light the bath-room, there may be lattice-work from beneath the eaves, down to five and a half feet from the ground. At the South the water is seldom warmed, and is usually pumped directly into the bath tub. The outlet pipe should discharge the waste water several rods from the well. The building shown in the engraving is ten by fifteen feet, a little more than half being used for the bath-room.

The Grapevine in Summer.

There is no time, from the first pushing of the shoots, until the leaves are ready to fall, but destructive insects of some kind attack the grapevine. Fortunately, the later insects are mainly large caterpillars or beetles, and one who is frequently among his vines, can destroy them before they can do much injury. The great pest in the hot months of July and August is mildew, and the vine grower should be constantly on the look out for it. Some varieties of the grape are much more subject to its attacks than others, and these vines should be watched for the first appearance of the scourge. Whitish or grayish spots or blotches on the under surface of the leaves, are mildew, and the remedy, a thorough dusting with sulphur, should be applied at once. Sulphur bellows are now kept in the seed and implement stores. Before using, the sulphur should be run through a sieve, in order to remove all lumps. Too large a quantity should not be placed in the bellows at one time, and in using it, the bellows should be so worked as to deliver a cloud of fine dust. Choose a still, hot day, and endeavor to have the under surface of the leaves as thoroughly dusted as the upper. A second dusting of sulphur may be made in about a week after the first, and it should be applied all through the season if mildew appears. Not only in early spring, but later in the season, strong, vigorous shoots will appear upon the main stem of the vine. These start at no particular place, and grow with great rapidity. Novices in grape culture are puzzled as to the proper treatment of these shoots. A shoot from a regular bud, if not needed, is broken away, and the same should be done with these chance shoots. Unless a cane is needed just where such a shoot appears, break it off. The laterals puzzle many, but their treatment is very simple. As a shoot grows, there will be found two buds at the axil of each leaf—the part where the leaf joins the stem. Later, one of these buds will start into growth—this shoot is called a lateral. We wish to keep one bud perfectly dormant, for next year's fruiting. If the shoot from the bud that has started were pulled out, the other one would start into growth, and there would be no fruit from it next year. The proper treatment of the laterals is, to pinch them back to one leaf, as often as they push.

Cuttings of Unripe Wood.

The experience of amateur gardeners in raising plants from cuttings, is, as a rule, confined to the currant and the grape. Cuttings from the ripened wood of currants of all kinds, take root very readily. The cuttings made from the prunings of most, but not all, varieties of the grape, will take root and form new plants. Amateur gardeners who would like to propagate their ornamental shrubs, find if they take cuttings, as they would of the currant and grape, from the ripe wood, they rarely succeed. Shrubs that refuse to be propagated from pieces of the mature stems, will usually succeed if cuttings are made of green, or just hardening stems. Cuttings of this kind have leaves, from which evaporation goes on rapidly; if planted in the open air, they will be very apt to fail. To succeed, it is necessary to provide a moist atmosphere, or as the old gardeners would say, "keep them close." A hand-light or bell-glass, placed over such cuttings, will provide a moist atmosphere, and insure success. But we write for those who are not supposed to have all garden conveniences at hand, and such, in the absence of hand-lights and bell-glasses, can provide a useful substitute from an ordinary box. Knock off both top and bottom, leaving a mere frame, and tack over it, in place of the top, a piece of cotton cloth. If the cuttings are planted in sandy soil, and covered with a frame of this kind, undue evaporation will be prevented, and a large share will take root. The amateur may try for his shrubs what we have frequently described for soft-wooded plants, as the "saucer method." A deep plate or saucer is filled with clean, sharp sand, the cuttings, an inch or two long, are set close together in this, and the sand is kept constantly wet, as wet as mud. Here the abundant water supplies the loss by evaporation from the leaves, and the dish and its contents may be exposed to full sunlight. Cuttings for this method should be very young and tender. If the sand is kept constantly wet, a surprising number of cuttings will take root. As soon as roots appear, the young plants should be potted in good soil. This method of striking cuttings affords to amateurs an interesting field for experiment. Some shrubs may be propagated by placing the lower portions of cuttings of their stems in a bottle of water and exposing them to the light. This is a very common method with the Oleander, but cuttings of other shrubs may be tried in the same way. As soon as roots are formed on the cuttings, they should be potted in somewhat sandy soil.

When and How to Harvest Wheat.

Mr. W. H. Burtis, The Glades, Ga., and others, ask us for information on the proper time to cut wheat. It is the experience of the best wheat growers in our own and other countries, that a superior quality of grain is obtained by harvesting the crop when the berry is in the soft or "doughy" state; that is, when the grain may be readily crushed between the thumb and finger. It is claimed that more bushels per acre, and a greater amount of flour of a better quality per bushel is thus obtained. Starch and gluten are the most valuable constituents of wheat, and the quantity of these is diminished by over ripening, while the per cent of woody fibre is increased. Every farmer can readily make a practical test of this question, by cutting a part of his wheat earlier than the rest, threshing, weighing, and grinding the grain separately. The method of harvesting the grain has much to do with its quality. One of the greatest sources of loss arises from the careless and hurried manner of shocking the bundles. If the shock becomes thoroughly wet, as it is sure to be in "catching" weather, if not properly made and protected, the grain begins to grow, and only an inferior bread can be made from it. There are several methods of arranging bundles in the shock; they may be set in pairs, forming a row of ten or twenty, or in round shocks. The long stooks expose a broad surface to the winds, and may be blown down, when the well-set round shock would stand the storm. The latter form also more readily admits of "capping." A secure small shock may be made of three pairs of bundles set closely and firmly, with two more bundles upon each side of the double row. The heads of the bundles are brought up together, and a cap-sheaf placed over all. This cap is an ordinary bundle, with the band placed six or eight inches from the butt, and the top bent out into the shape of a funnel. A larger round stook consists of four pairs of bundles, with three sheaves on each side, making fourteen, upon which two cap-sheaves are placed, each made as above described, with one side of the funnel left open where the two sheaves join on the shocks. A boy may aid in bringing the sheaves into piles, but it is no economy to employ him to shock them. It is a common practice to cut and bind until night-fall, and afterwards set up the sheaves in the quickest way possible. Of all harvest work, the shocking of grain should be done with the greatest care; otherwise a hard storm may convert the poorly made shocks into piles of decaying straw and growing and nearly useless grain.

Burning Down Trees.

In the Southern States, especially Florida, the pine trees are usually burned down when clearing the land. This practice could often be advantageously followed at the North. Figure 1 shows the common plan. A hole about twenty inches deep and two and a half feet square is dug on the leaning side of the tree, so that when it

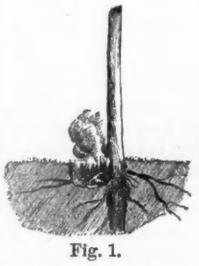


Fig. 1.

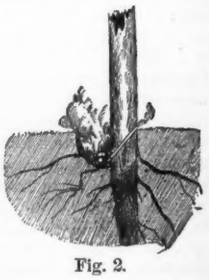


Fig. 2.

falls the opposite roots if any remain unburned will be pulled out. The lower part of the trunk thus exposed is struck a few times with the axe, and left a short time for the pitch to exude. A fire is kindled in the hole as shown in figure 1. Trees ten inches in diameter are burned off and the roots burned out below the plow line in twenty to thirty hours. A more expeditious way is given in figure 2. A hole is dug as before described, also removing eight or ten inches of the earth from the opposite side. With an inch and a half or two inch auger, a hole is bored through the tree at an angle of forty-five degrees, as shown above. For this purpose a ship auger is used, or a long shank may be welded to a common one. The hole thus bored acts as a chimney, and soon not only the side of tree is on fire, but the chimney part as well. The tree is burned down in less than one-third of the time required by the old method. A strong man can bore nearly fifty of these holes in a day. Stumps are removed in the same manner, and if dry, in a considerably shorter time than trees.

Bee Notes for July.

W. Z. HUTCHINSON.

MAKING HONEY VINEGAR.—The "cappings" shaved off in the preparation of honey for extracting, are always allowed to drain. But even when thoroughly drained, considerable honey still adheres to them, and it is an excellent plan to have a keg or a barrel of water in which to wash them, and to allow the water to ferment and become vinegar. Water which has been used to rinse out any utensil that has contained honey, can be thrown into the barrel. The scum that arises upon the surface of the sweetened water should be skimmed off.

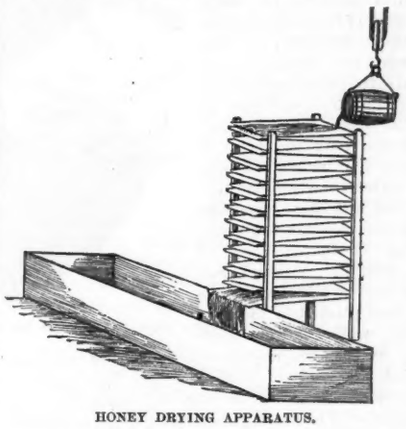
MAKING BEESWAX.—The "cappings" which accumulate in the extraction of honey, and all odds and ends of comb, should be carefully saved, but in warm weather it is well to render them into wax as soon as possible; otherwise they are liable to become infested with the bee moth's larvæ. What is called a Swiss wax extractor, is a convenient utensil for rendering wax. It is simply a "basket" of perforated zinc, inside a "steamer" which is set over a kettle of boiling water. The refuse comb is placed in the basket, and the steam rises and melts the wax, which is caught by a false bottom in the steamer, and runs out through a spout in the side. When there is not much wax to render, the cappings of combs can be put into a tin sieve, the sieve covered, and then set over a pan of boiling water. The steam will melt the wax, which will run down and rest upon the water in the pan. The pan and its contents can be set aside until cold, when the wax will be found formed into a cake. Another method is to put the combs into a cloth sack, and the latter into a wash-boiler—the sack being held at the bottom of the boiler by means of a stick, the upper end of which presses against another stick, lying across the top of the boiler, and tied to its handles. When the wax is melted, the boiler is set aside until the wax is cool enough to be removed. Wax can be cleaned from utensils, by using a cloth saturated with kerosene oil.

FUEL FOR SMOKERS.—Many substances have been recommended as fuel for smokers, but nothing has given the writer more satisfaction, than what is sometimes called "punk," a peculiar kind of dry rot. That from the maple tree is best.

ANTS.—To circumvent the little ants, that sometimes prove themselves such nuisances by getting into honey, place it upon a table or platform, the supports of which rest in dishes partly filled with kerosene oil. A muslin cover with a rubber cord in a hem around its edge, will exclude dust and insects from a vessel holding honey.

A BEE STING REMEDY.—Veteran bee-keepers rarely trouble themselves with bee sting remedies, but amateurs, and those in whom the flesh swells when stung near the eyes, often wish for something that will reduce the swelling and pain. The best remedy known to the writer is a tincture of Plantain, made by pouring alcohol over the freshly gathered leaves, and allowing it to remain until it turns black, when it is poured off and bottled. If this remedy is applied immediately after the wound is given, the swelling and pain will be scarcely perceptible. If the person is severely stung, a few drops of the tincture can be taken internally.

RIPENING HONEY.—When first gathered, honey is generally quite thin and watery, so that it can readily be shaken from the combs, but the heat of the hive, aided by the manipulations of the bees, soon reduces it to the proper consistency, when the bees seal it over. It has been asserted that larger quantities of honey can be obtained, if it is extracted when first gathered, but, when taken in this "green" condition, it must be ripened by artificial means. Otherwise it ferments. It will rarely do so, if nearly ready to seal when extracted, and if allowed to stand in open vessels, the excess of moisture will in time evaporate. Mr. Pettit, a Canadian, has the following method of ripening honey. During a bountiful yield, he extracts as often as once in three days, and when a barrel is full of honey, it is raised by means of ropes and pulleys, to the upper part of the honey room. The faucet to the barrel is slightly opened, and a small stream of honey allowed to trickle upon the upper edge of a sheet of tin, having a slight inclination. From the lower edge of the tin, the honey drips upon the upper edge of another sheet, placed under the first, but inclined in the opposite direction. From the lower edge of the second sheet of tin, the honey drips upon the upper edge of a third sheet, from the third to the fourth, and in this manner it continues to flow from sheet to sheet, until it passes over about thirty sheets, when it runs into a large vat. To prevent the honey from running off at the sides of the sheets, their edges are slightly turned up. Mr. Pettit has never found it necessary to run the honey through the evaporator more than once.



HONEY DRYING APPARATUS.

There is some difference of opinion, however, as to whether honey thus artificially ripened, has the fine, aromatic flavor, and smooth, sweet, oily taste, of that thoroughly ripened in the hives. The writer's experience in this matter would lead him to decide the question in the negative.

New Varieties of Honey Bees.

L. C. ROOT, AUTHOR OF "NEW BEE-KEEPING."

Through the efforts of Messrs. D. A. Jones, Frank Benton, and others, who have spent much time and money in this direction, several varieties of bees, new to this country, have been introduced, and their comparative value to some extent tested.

The Cyprians have some marked characteristics. They have been quite thoroughly tested, but do not grow in favor with the majority. They are far too irritable to be agreeable to handle. Some consider them superior honey-gatherers. I have given them quite a thorough trial, and the only point I could find in their favor, was a tendency to breed late in the fall, which is desirable as affording a good force of young bees when going into winter quarters. I have not tested the Syrians. Mr. Benton pronounces them among the very best. The Carniolans are said to possess some very desirable qualities, and a cross between them and the Italians has a good reputation. Much has been said of the Holy Land or Palestine bees, but my own experience does not corroborate all that is claimed for them.

Mr. Julius Hoffman received an importation of Caucasian bees in 1880. He has experimented quite extensively with them, and is of the opinion they are superior in many respects. In fact, I have never heard more desirable points claimed for any one variety than Mr. Hoffman claims for these. He is one of our most practical bee-keepers, and his conclusions should be received with confidence. Much credit is due those who have been so persevering in securing to us these new varieties. The ultimate results must be of great good, as the future crossing of these strains will no doubt give us one with a combination of very superior traits.

The Cow in Midsummer.

On farms where the dairy is an important part of the husbandry, provision is made by sowing soiling crops, to supplement the diminished pasturage in midsummer. Those who keep only the "family cow," or at most two or three cows, find the flow of milk to decrease, and often without any green crop provided for keeping it up. The territory of those who keep but a single cow, is often restricted to a small pasture and a vegetable garden. The garden should be made to supplement the pasture, and this may be done to some extent by securing for the cow much from the garden that usually goes to waste. Every one who has a garden, tries to have an abundance of green peas. After the vines have yielded their last profitable picking, instead of allowing them to remain upon the ground until that is wanted for another crop, feed the vines to the cow while they are still green and succulent. So with sweet corn. When the last ear is plucked from a stalk or a hill, do not wait until the whole patch or row can be cleared, but pull up the stalks that have been deprived of ears, a few at a time, and feed them while in their best condition. The outer leaves of early cabbages, and the leaves of beets, carrots, and turnips, carefully saved, will make an important item in the succulent food for the cow. If there is a space in the garden, from which an early crop has been removed, and it is not needed for a late garden crop, it should be growing something for the cow. Sweet-corn may be sown thickly in rows for "fodder corn," and afford welcome feed. It is well to have an abundance of cabbage plants of a large late variety, and set them out wherever there is room, and far beyond the needs of the family. An occasional cabbage next winter will be a treat to the cow. Experiments made a dozen years ago with some twenty varieties of the Southern Cow Pea showed, incidentally, that, even at the North, if they did not ripen their seeds, they would give an enormous weight of herbage upon a small area. This pea is highly valued for animals at the South, both fresh and as hay, and seems to be worth trying in Northern localities, as a soiling plant. Where there is room, even a few square yards, it may be well to sow either Hungarian grass, or one of the plants called Millet, for late summer feed for the cow. If the soil is rich, an abundant crop may be cut. Besides summer feed in the garden, if there is room there or elsewhere, it is well to think of Jerusalem Artichokes as a winter treat. It is late now for a large crop, but with the tops, which are highly relished, the tubers, being crisp, succulent and highly nutritious, will be most acceptable as an addition to dry fodder. When one once fairly undertakes to produce the greatest possible amount of cow food from a small area of land, he will be surprised at the results that he obtains, especially those seen in the pail.

Blight in Different Varieties of Pears.

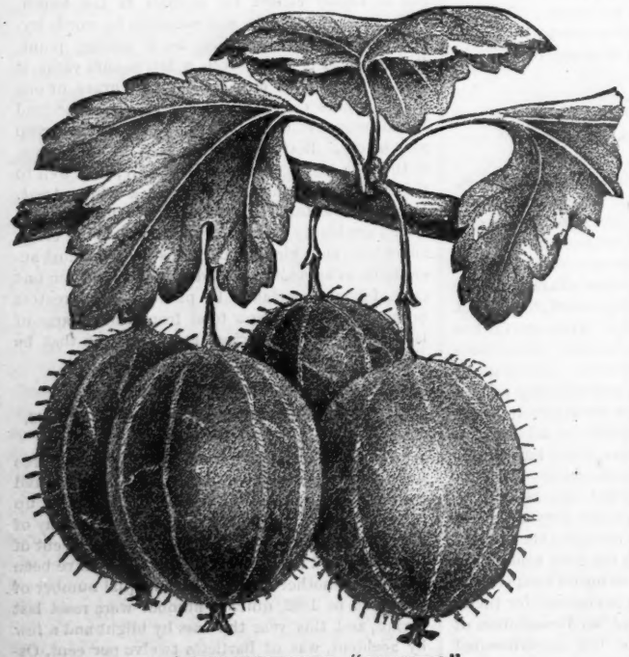
In an orchard of five hundred pear trees, three hundred Louise Bonne de Jersey, and two hundred Bartletts, planted in 1876, the blight had killed, up to last year, forty Bartletts, and about as many of the Louise Bonne. This season four per cent of the latter, and six per cent of Bartletts have been reset. In another orchard of an equal number of trees set in 1882, quite a number were reset last spring, and this year the loss by blight and a few by accident, was of Bartletts twelve per cent, Osband's Summer eight per cent, and of Duchess de Angouleme less than two per cent. Thus it will be seen that the Bartlett is most subject to blight of the four varieties. Indeed the loss among three hundred and fifty Bartletts was nearly as great as in six hundred and fifty trees of the other three kinds.

The Bartlett is a deservedly popular variety with buyers of fruit, and by them is considered a

standard of excellence. Though it commands a ready sale, and is an abundant and regular bearer, yet it is peculiarly subject to blight. Can we afford to plant a pear so universally short lived? A mortality of twelve per cent annually, is a very serious loss, amounting to an entire renewal of an orchard every ninth year. Under the most favorable circumstances, with these figures, not more than four crops could be expected, even if the trees lived the full term of nine years. Would this amount of fruit be a sufficient remuneration for the cost of the tree, its planting and cultivation for the other five years? A much larger number of Bartletts are planted than of any other variety; is the practice to be recommended? A superabundance of one variety will make a glut in any market. Would it not be better to partly substitute Duchess that is subject to a loss of only two per cent? This would be of assistance in time of a glut, and materially decrease death by blight. THEODORE GOODRICH.

Gooseberries.—New Variety.

The English gooseberries, noted for their great size and fine quality, are rarely seen in our markets. They are so subject to mildew that only a few fanciers, mainly Englishmen, endeavor to cultivate them, and by a constant fight with the mildew, manage to secure dearly earned small crops of their favorite fruit. The varieties grown for market are American seedlings. The first of these, the "Houghton," was many years ago raised at Lynn, Mass., and in spite of its small size, its freedom from mildew, and the abundance of its fruit, caused it to be widely cultivated. Numerous seedlings were raised from the "Houghton;" several with larger fruit than the original, are on that account preferable to it. The best of these originated with Charles Downing, and is known by his name. Probably nine-tenths of all the gooseberries produced for market are gathered and sold while green, and are used for cooking. When ripe they are not large enough or of sufficiently good quality to be a satisfactory desert fruit. A good gooseberry is so desirable, it is not surprising that fruit-growers should test the new varieties which are produced abroad, in the hope of finding one that can be grown in our climate. A new foreign variety, the "Industry," has been offered this year by a nursery, the proprietors of which are well known pomologists, and when they say that they think "it is destined to revolutionize gooseberry culture in this country," we are sure that they have good grounds for the belief. The bush is described as a vigorous grower, and immense yielder, and as showing no signs of mildew. The size of the fruit is shown in the engraving; the color is dark red, skin somewhat hairy, and the fruit is said to be of pleasant, rich flavor. We shall look upon the future of this berry with interest, and hope it may prove to be the fruit so long desired by the lovers of gooseberries, in all portions of the United States.



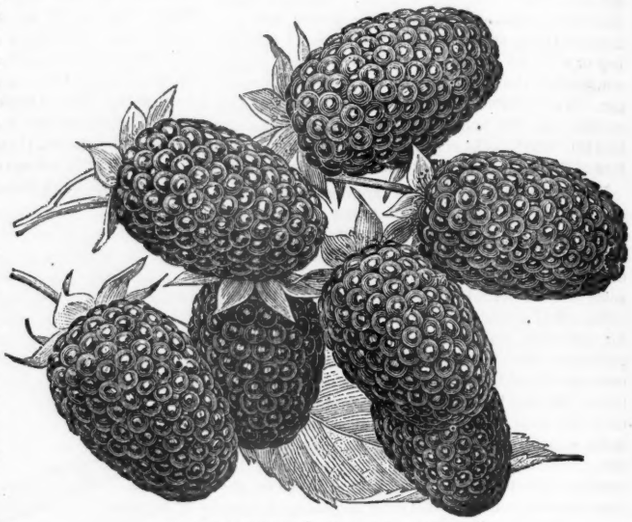
A NEW GOOSEBERRY—"INDUSTRY."

California Lemons and Limes.

Among the institutions peculiar to Southern California are the Citrus Fairs, held annually in different cities. At these fairs, in addition to the many varieties of oranges with which the halls are crowded, there are exhibited a great quantity of lemons and limes. At a recent Citrus Fair, held near San Diego, twenty-six varieties of lemons were shown, with sixteen of limes. Many of the lemon-clusters suspended from the ceiling were very fine, as were also the pyramids and trays of this fruit exhibited on the tables. The "Eureka" lemon took the prize at this Fair for the best budded fruit.—About one hundred and forty thousand lemon trees are now growing in the orchards of California. Around San Francisco Bay the lemon is often planted in the open air, where it sometimes grows to be seven or eight feet high, and bear fruit; but the southern portion of the State is better adapted to it. In Los Angeles County, alone, the number of lemon trees, according to the assessment roll of 1883, was fifty thousand, five hundred and sixty-five. At Riverside, in San Bernadino County, there are twenty thousand trees, and the crop of 1881-82 amounted to three thousand eight hundred boxes of lemons, and five thousand of limes. Lemons and limes are also cultivated in Santa Clara, Stanislaus, Fresno, San Luis Obispo, Ventura, and San Diego counties. The Sicily and Malaga lemons are the varieties most cultivated, although the Chinese is very prolific. This lemon is very hardy, but never becomes a tree of more than ten feet high. Lemons do not require more than a third as much water as oranges, and for this reason the two are rarely planted together. Many farmers surround their lemon orchards with hedges of limes as windbreaks. As the limes seldom grow to be more than bushes of from four to about ten feet high, they answer the purpose of a hedge.

In many parts of Southern California limes are so common, that every year great quantities of the fruit drop to the ground and are allowed to decay. Among those who have regular lime plantations, from one to two hundred bushes occupy an acre. There are two crops yearly for the limes, one in January and the other in June. Lemons are generally more profitable than oranges. When in good bearing, a lemon tree will yield about fifteen hundred lemons per season. The cost of gathering the fruit and shipping it from the southern part of California to San Francisco, is about five dollars per thousand. About the same amount must be paid for water per acre. The general estimate is, that the ordinary yearly profit of an acre of lemon trees in good bearing amounts to one thousand dollars. The chief objection to the lemon as a fruit tree is its slowness in coming into good bearing. For the first ten or a dozen years, the tree does not bear heavily, but after that the profit is sure. One fifteen-year-old tree in Los Angeles, a few years ago bore two thousand lemons, which sold in San Francisco for sixty dollars, and at the recent Citrus Fair, one of the exhibitors stated, that he had sold this season from one tree, within three months, fourteen hundred lemons, and still the tree was well loaded with fine fruit.

The lemon is as easily propagated from seed, cuttings, or suckers, as the orange. About eighty trees are planted on an acre. A lemon orchard does not present so beautiful an appearance as one of orange trees, for the foliage is less luxuriant and the branches are irregular. The lemon blooms here about the first of March or April, the first crop being then on the tree. The second crop comes in the summer, and the third in the autumn.



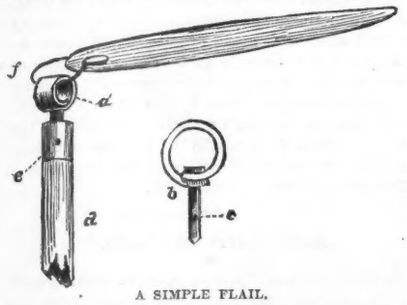
A NEW BLACKBERRY—"EARLY HARVEST."

New Blackberries.—Early Harvest.

There appears to be "a boom" among blackberries, more new varieties having come forward during the past two years than during any corresponding period. Cultivators appear to be working in the direction of earliness, and to "Wilson's Early" and "Early Cluster," they add the "Early Harvest." Is great earliness desirable in a blackberry? It is of importance to the fruit-grower to have the fruits follow one another in regular succession, and blackberries are not wanted until the raspberry crop is out of the way. It is claimed for the "Early Harvest" that it is the earliest of blackberries, being ten days in advance of the "Early Wilson." It strikes us that while extreme earliness is not desirable, there are directions in which the blackberry may still be improved. As to quality, if there is a berry superior to a well ripened "Kittatinny," we have not seen it. What is now especially needed is, a blackberry that will be ripe when it is black, and which, after being picked will retain its brilliant jet-black color, without becoming dull and brownish after a few hours' exposure. It is said that the "Early Harvest" originated in Illinois, and has been cultivated to some extent for the Chicago and other markets. The few who have tested it at the East, report in similar terms with the western growers, viz: that it is a very hardy and prolific variety; the fruit ships well, and it is thus far the earliest of all the blackberries. As the "Early Harvest" has been largely planted for market at the East, we shall soon learn its value as a market fruit there.

A Threshing Flail.

The engraving shows a simple flail, which works easily, and wears much longer than the wooden connection usually employed. The loop, *a*, is made of a piece of thick, hard leather—a piece of an old harness tug, or a strip of sole leather is good. The leather is cut about an inch and a quarter wide, and formed into a loop with the ends lapping as shown at *b*. A hole is made through the lapped ends, to receive a round-headed bolt. This bolt has a pin-hole, *c*, at its lower end. The bolt is now driven into the handle *d*, and the pin *e* inserted, which holds the bolt in place. A piece of tough leather



A SIMPLE FLAIL.

thong, *f*, is put through the leather loop *a*, to unite the two parts of the flail. This loop *a* swivels on the bolt *b*. This is firmly fastened in the handle.

Live-Forever as a Weed.

Several of our troublesome weeds are escapes from cultivation, as may be conspicuously seen in the Wild Parsnips and Wild Carrots. These are degenerate useful plants, and the Toad-flax (*Linaria vulgare*), is a quite too common example of an ornamental plant that has gone astray. This showy plant was cultivated by our grand parents, as "Butter and Eggs." A Mr. Ranstead had it in his garden near Philadelphia, and the plant is known in Pennsylvania as "Ranstead Weed." Live-forever is another ornamental plant, that has escaped and become a weed. Mr. "J. E. B.," Little Falls, N. Y., sends a specimen of a weed known as Live-forever, and wishes to know about the plant, and how to get rid of it. Live-forever, as a weed, is of comparatively recent occurrence. It is a species of Stone-crop (or *Sedum*). Its numerous stems form a clump, which, when in flower, is quite handsome. We can remember when it was grown in gardens for its beauty and as a curiosity. A well established clump has numerous fleshy stems a foot or more high. The ovate leaves are very thick, and each stem is terminated in mid-summer by a large, flat cluster of light-purple flowers. The stems are very tenacious of life. A full-grown shoot, fastened by a pin against a window sash, instead of wilting will go on and perfect its flower cluster and bloom from the nutriment stored up in the thick stem. While this peculiarity of the plant made it an interesting one, its strong hold upon life, and the fact that every fragment of the stem in contact with the soil, will strike root and form a new plant, make it very formidable as a weed. In many places where it has gained a foot-hold it shows every disposition to stay. Its reproductive powers are so marked that breaking up the old plants by plowing or digging only increases the trouble, as every stem, or fragment of one, will form a new clump. European works upon agriculture do not mention Live-forever as a specially troublesome weed, yet in this country it has in many places established itself, and its eradication is already a serious problem. The subject was brought to the attention of our readers several years ago. One correspondent then reported success with smothering the plants, placing upon them small heaps of manure, or covering them with bog-hay, or whatever would exclude light and air. A few clumps can be thus treated, but where the plant, as in some cases, has taken possession of the ground, smothering is not easily practised. With this, as with all other weeds, "resist the beginning" is the true method. The farmer should know all plants by sight. Those not known to be of use may be regarded as enemies. If upon the first appearance of a stranger, he is questioned as to his objects, much trouble may be saved. Let those who have successfully exterminated "Live-forever" report their methods of dealing with this weed. The pest is increasing.

Patents, and Patent Laws.

That the farmer who, finding a design for a gate in the *American Agriculturist*, or other journal, has built one from it, should feel aggrieved when some one subsequently calls upon him and demands a royalty, is not at all surprising. Another farmer has read that the patent on the driven-well is not valid, puts down the tubes for such a well, and soon finds himself obliged to pay a royalty, or to stand a suit at law. He of course feels that he has been wronged, and looks upon all patents as frauds. These gates of different kinds, and the driven well, are but examples. There is scarcely any other device used by the farmer, even if of his own invention, for which he may not be called upon to respond—honestly it may be, but often dishonestly—for an infringement of somebody's patent. Such cases have occurred so frequently, especially in the Western States, that farmers—and we do not wonder at it—have become exasperated. They have now, through their granges, clubs, and other associations, made themselves heard by their members of Congress, in their demands for relief. As a consequence, bills have been introduced, looking to the abolishing of the patent office. Hasty legislation is undesirable at all times, and would be especially unfortunate in the present case. While general attention is called to the matter, the present is a good time to revise our patent laws, and endeavor to remove their objectionable features. Our present system, liable as it is to abuse, is vastly better than none at all. In agriculture alone, the patented inventions have been of a benefit that can not be computed. The present mowers, reapers, headers, threshers and a host of other farm machines, would never have been in use, could not the inventors have been able to patent them. One must be short-sighted, who can not see that patents have done much to advance our agriculture. Our patent system is open to abuse, and no doubt has been made use of by swindlers. That this is the case, is not so much the fault of the patent laws as of the farmers themselves. If the farmers of every township, or school district, had an association, the members of which would make common cause against all frauds who claim to have patents on the commonest farm devices, and instead of compromising these claims, could contest them, this would usually be the last of them. When our Patent Rules are revised, and the present seems a good time for doing it, we would suggest that much of the trivial stuff that is now patented, be rejected altogether. The present rule seems to be, to give a patent to everything that has not been patented before. A farmer may have used a simple device for many years, some sharp fellow coming along sees it, and procuring a patent, may prevent the farmer from using his own invention, unless he pays a royalty. Abuses of this kind are not rare; they should be made impossible. At present a patent is worth nothing to the inventor, until he has been at the expense of defending it in the courts. The government should keep out all the trivial stuff, and allow patents for only really useful and important inventions, and having once granted a patent, and taken pay for it, should defend it in the courts without cost to the inventor. A treaty, which has been made by representatives of our own, European and South American Governments, has been presented to the Senate. The nations in this union or league, agree that a patent granted in any one of these countries, shall be valid in all the others. This scheme seems to be favorable to our own inventors. But the people have something to say, as well as inventors, and before concerning ourselves with our foreign relations, let us have patent laws that are acceptable to farmers and others at home, and not be open to the abuses at present possible.

The Farm Workshop.

The farm workshop should be conveniently located as to both house and barns. Some of the operations to be performed therein will require the use of a fire, more particularly so in the winter, and therefore place the shop so that the strongest prevailing winds will carry all sparks away from other buildings. The size, character, and style of the building will vary with the means and taste of each builder. In length, it should give ample room for a board sixteen feet long, and wide enough to accommodate a good work-bench, leaving room to run a wagon in alongside, with plenty of space on each side to work at any part to good advantage. The hight should be at least eight feet to the eaves, and the roof may be either flat, span, or lean-to, as the builder desires, only it must be waterproof.

The elevations and plan, figures 1, 2 and 3, show a building twelve by twenty feet on the ground, and eight feet high, which will give plenty of room for all ordinary work. To build this will require about eight hundred feet of one-inch lumber, eight feet long, for sides and roof; two pieces two by six, twenty feet long; two pieces two by six, twelve feet long; eight pieces two by four, twenty feet long; four pieces two by four, twelve feet long, and eighty feet flooring for doors. The windows as shown in figures 1 and 2, are of eight by ten glass.

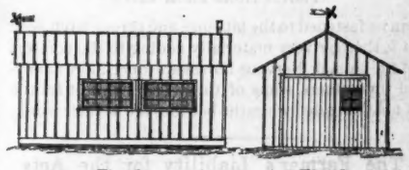


Fig. 1. Fig. 2.

Figure 4 shows how the sills and plates are placed. The siding, eight feet long, running up and down, is nailed firmly to the plates and sills. The gables are covered with lumber, lapping down over the ends six inches. The roof boards, eight feet long, run up and down, and are nailed securely to the plates, the ridge, and pieces between.

The roof should be covered with a sheathing of tarred-paper and shingled, or what is preferable, with a roofing of asbestos, which, if laid according to directions, will give a firm, lasting, and fire-proof roof. The sides may be simply battened, or what is far better, covered with a water-proof sheathing, battened and well painted. The extra cost of the sheathing will be repaid many times in comfort in cold, wet weather. The doors are made of flooring, having battens firmly fastened on with wrought nails, and hung with heavy strap-hinges. The large door should be hung to swing outwards, and can be

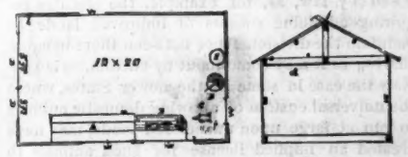


Fig. 3. Fig. 4.

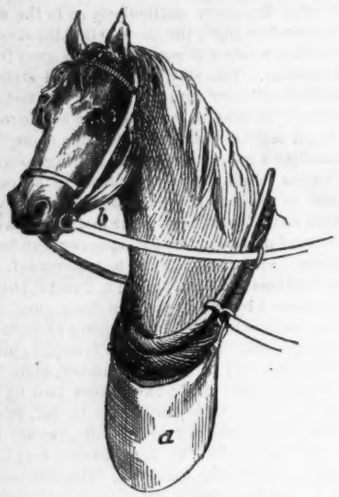
fastened by bolting a piece of two by four scantling on the front edge. The small door can swing inward and be provided with a strong lock and a latch.

There should be four or five boards nailed firmly to the under side of the plates and center-piece, as shown at *a* in figure 4. These may be of any width, the wider the better. Place a board through the center, and another midway each side of this; they will prevent the sides from being pushed apart by weight on the roof. Nail three or four boards from the center-piece to the ridge pole. The space under the roof can be utilized for storing odd pieces of lumber, etc., where it will season thoroughly, and be convenient when wanted.

Figure 3 shows the location of the work-bench *a*, foot-lathe *b*, anvil *c*, forge *d*, and the coal barrel *e*.

Aprons for Horses.

Horses while at work should have some protection from the bot-flies, which lay their eggs upon their shoulders, neck and gullet during the summer months. An apron may be made of any coarse cloth, and fastened to the lower part of the collar, as shown at *d* in the engraving. The horse is most annoyed by the bot-flies when they dart under and strike the throat. To prevent this, a cloth



PROTECTIONS FROM FLIES.

can be fastened to the bit-rings and throat-latch, seen at *b*, thereby very materially adding to the comfort of the animal. Nervous horses are much more annoyed than others, some of them being almost frantic if not protected when the bot-flies are at their worst.

The Farmer's Liability for the Acts of His Beasts.

H. A. HAIGH.

GENERAL RULE AS TO TRESPASSES.—It is the duty of every one to keep his domestic animals upon his own premises. This duty extends to his own animals, and those that are entrusted to his keeping. If he fails to perform this duty, and the animals escape and go upon other person's lands, and there do injury, it is a trespass for which an action will lie, and damages may be recovered.

EXCEPTIONS TO GENERAL RULE.—This general statement is modified by the fact, that where the owner of lands trespassed upon is under obligation to keep them fenced against these particular animals, and he fails to do it, then no damages can be recovered. Such an obligation may arise by agreement between the owner of the land, and the owner of the trespassing animals; or it may be imposed by law, as, for example, the statutes requiring adjoining owners of improved lands to maintain the division fence between them in equal shares; or it may come about by custom, as is possibly the case in some of the newer States, where the universal custom of allowing domestic animals to run at large upon unenclosed lands, may have created an implied license for such animals to enter lands that are not enclosed with fences. But where fence regulations have been complied with, and domestic animals trespass notwithstanding, then their owners are clearly liable for the usual injuries resulting from such trespasses, like grazing off and trampling down grass, grain, or other crops.

INJURIES BY VICIOUS ANIMALS.—For the vicious acts of unruly domestic animals, like kicking, hooking or biting, the owner is generally liable. If a man owns an ugly beast, prone to do harm, it is his duty to prevent it from doing injury, both on his own premises and everywhere else, so that people may not suffer from its dangerous disposition. He must use due care to prevent any harm resulting from its evil propensity, and his liability will depend upon some negligence on his part, some failure of his duty to exercise due care. Of course if he does not know that the beast is dangerous, he cannot be expected or required to take extra precautions; if he has not had what in law amounts to notice of the evil disposition, he cannot be held liable for not guarding against it. Consequently, where a horse or an ox suddenly, and without any previous exhibition of bad temper, does a vicious act, like kicking or hooking a bystander, its owner is not, and in reason should not be, held liable. As to what amounts to notice of a vicious temper, the rule is that it should be sufficient to put a prudent man on his guard. It is not necessary that the animal should have already done harmful and vicious acts; if it has manifested a disposition to do such things, that is sufficient to notify the owner of the danger (25 Conn., 92). The notice, however, in order to lay the duty of precaution upon the owner, must be notice of a propensity to do the particular mischief that has been done. Notice that a dog will worry sheep, is not notice that he will attack a person (66 Ill., 309), or is notice that a horse will run away, notice that he will bite (11 Ind., 269); though it has been held that notice that a bull will attack and gore other cattle, is sufficient notice that he would so attack persons (27 Pa. St., 331). And there are certain kinds of mischief, which certain animals—for example, stallions—are prone by nature to do at a certain time of the year, and these must be guarded against by the owner, without any previous warning (26 Ind., 334).

It is no defense to a vicious injury by a domestic animal, that it was committed on the owner's own premises, and that the person injured was at the time a trespasser (17 Wend., 496). A man cannot defend his premises by such means as a ferocious beast, any more than by setting man-traps, or spring-guns (37 Iowa, 613). So, therefore, if the farmer keeps a savage dog, allows him to go unrestrained about the farm, and he attacks and injures a person who is casually crossing the land, the farmer will be liable, nay more, if the person be at the time a trespasser, hunting in the farmer's woods on Sunday, the farmer will have to pay for his lacerated legs, although he did not set on the dog (17 Wend., 497). Likewise, if the farmer has an ugly and ferocious bull, which he allows to traverse through his fields, and the animal pitches upon strolling fishermen, trespassers though they be, the farmer will have to pay for their broken ribs, or broken necks, as the case may be (3 C. & P., 138; 124 Mass., 49). One may doubtless defend his house against burglars by a savage dog, but if it bites and injures any one coming to the house on any innocent purpose, he will have to pay for the damage (41 Cal., 138). Some sort of negligence, however, on the part of the owner of the unruly beast, is necessary to create a liability. If one's horse breaks loose from him and runs away in the street, and there injures some one, or smashes a carriage, he is not liable merely because the horse got away. Some negligence must be shown, as that he left the horse unhitched, or his harness or wagon was known by him to be out of order, or unroadworthy, etc. (3 Allen, 565).

CONTRIBUTORY NEGLIGENCE EXCUSES.—As the right to damages depends upon negligence on the part of the owner, any contributory negligence on the part of the person injured, excuses the owner and relieves him from liability. It would be obviously unjust to allow a man to recover damages for an injury which he himself helped to bring about. Consequently, if I go into my neighbor's pasture, and begin teasing his mad bull, I cannot complain if the bull tosses me over the fence, and injures me in so doing. Undoubtedly it was negligence for my neighbor to keep such a savage animal unconfined, but it was also negligence for me to place myself needlessly in its way. But if my little children, not yet old enough to know the harm of going near, or teasing a fierce bull, went there in play and were injured, without any fault on my part, then the principle would not apply (4 Allen, 431; 10 Cox, 102).

INJURIES BY WILD BEASTS.—Formerly the mere keeping of a wild and ferocious beast, was of itself negligence; at least, damages might be recovered for the injuries done by one, without alleging negligence on the part of its owner (9 Q. B., 101); but this is not now the case. The keeping of wild beasts for exhibition, and the entertainment and instruction of the public, is now a ligitimate business, and all that can be demanded of their keepers, is the highest degree of care and caution, and if, notwithstanding these, they manage to get loose, and do harm, it must be referred to the category of accidental injuries, without ground for action (8 Barb., 630). It is no longer unlawful to parade some wild animals, as elephants and camels, on the public streets. If a horse is frightened by the mere appearance of these, and runs away and does damage, the owner of the elephant or camel is not responsible (38 Barb., 14).

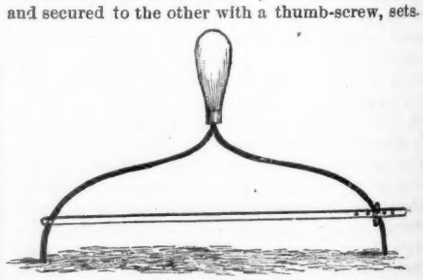
As to the liabilities of owners of dogs, for injuries done by them, the statutes of nearly, if not all of the States, have made provision. It would require too much space to give even an analysis of these statutes. Generally they remove the necessity of proving a *scienter*, that is, that the owner had knowledge of the dog's vicious disposition. The effect of them is generally to presume all dogs ugly, and to make the owners liable, irrespective of their knowledge on that point.

Beets Early and Late.

In most gardens it is customary to make a sowing of some early beet, and after the crop from this is used up, the table is supplied from the rows of the Long Smooth Blood, or other long and late variety. While the last named is the best of the late beets, it is, at its best, vastly inferior to the small early kinds. We regard the Early Egyptian as the finest beet with which we are acquainted. The Early Blood Turnip Beet is larger than the Egyptian, and while not quite equal to it in quality, is still a very good and useful variety. We manage to have one or the other of these all through summer and autumn, and usually our winter's supply is of the Blood Turnip, instead of the longer kinds. The Egyptian is sown every ten days until July, when abundant sowings of the Blood Turnip are made, to be used when large enough, and to have a sufficient supply for winter. In all sowings of beet seed, we sow with a free hand, with a view to abundant thinnings, which, of any beet, are the best summer greens. In growing early beets, we are apt to leave them too close together; five inches apart in the rows is quite near enough; those intended for winter may be thinned still more by pulling the roots, as wanted to supply the kitchen, from those parts of the rows in which the beets are the thickest. In storing beets for winter, be careful that they do not shrivel; covering the roots with sand prevents this and keeps them fresh.

A Land Measurer.

An instrument for measuring land is shown in the engraving. It consists of a wooden handle, into the bottom of which are fastened two stout curved iron rods. A cross-bar, bolted to one rod, and secured to the other with a thumb-screw, sets

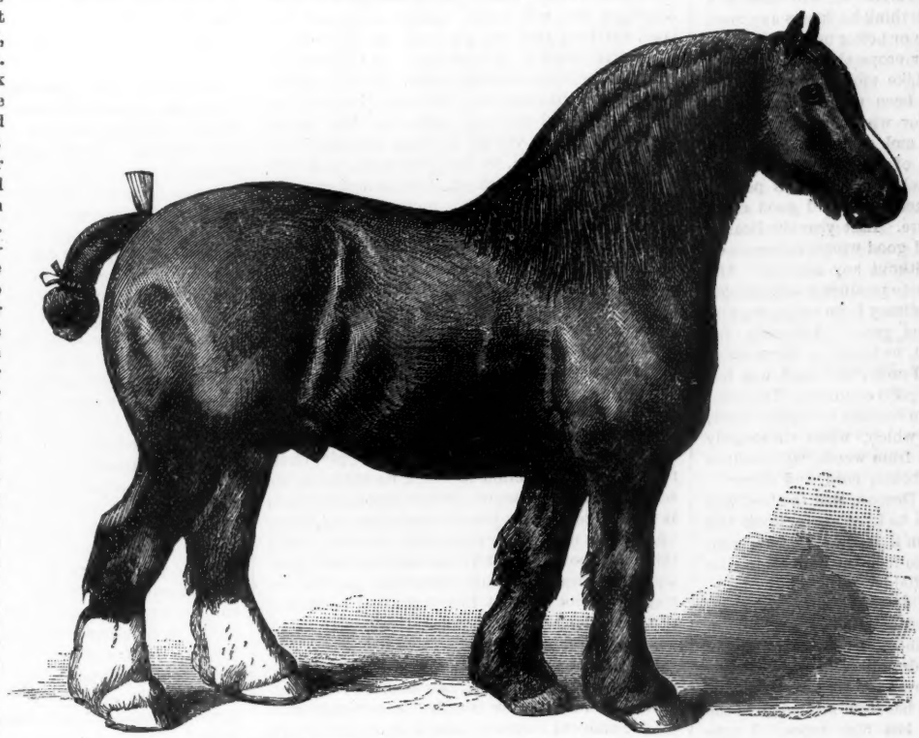


A LAND MEASURER.

the ends of the two rods at the desired distance apart. The measurer may be arranged so that the distance is one quarter of a rod, or it may be more or less. The implement is taken in one hand, and alternately turned upon each leg or end of the rod. It is only necessary to keep moving in a straight line. Measuring in this way is much more accurate than pacing, and may be done almost as rapidly.

The Improved English Shire Horse.

Our breeders are awake to the fact that there is much good material in the English Shire horse, inasmuch as they are importing descendents of this stock more largely than at any former time. Great ungainly brutes they were, but having been improved by judicious crosses and selections, they are no longer looked upon as mere elephantine masses of flesh and bone. When bred with care they rival the Clydes and Normans for form, style, nerve, power, docility, and endurance, while for size they are simply stupendous. They offer grand stock to build upon, having a relation to the finer and high-bred races the qualities, as it were, of a rich soil, abundant nutrition. The cross will "nick well," provided it be not too violent, and the foal has the best possible chance for full developement and vigorous growth, both before and after birth. How often we overlook the importance of a good dam. No breeder should ever breed from a poor one with any expectation of improvement. Her influence extends for generations, usually alternating with the sex of the progeny. Thus the sons of a fine mare will be more likely to reproduce her good qualities in their daughters, than will the mare herself in her own daughters; the latter will very likely reflect their sires' rather than their dams' good points. The improved horses, a superb example of which is shown in the engraving, are firm in bone and compact in every way without deterioration in weight. They are said to look like smaller horses, but to weigh much heavier than they look, and that is the secret of their excellence. If great soft bones, flabby muscles, and fat be compared with fine, hard, solid bone and flesh, easily kept in condition, there will be found naturally greater weight, greater power, greater endurance, a better constitution, and greater value. The old style of mares have grand digestion and great capacity for turning hay and grass into flesh and milk. They were not easy keepers, but great producers, like the big milking cows. Their progeny are, therefore, splendidly developed, share the finer and firmer qualities of their sires, their nerve power and willingness to work, as well as the strong muscles to do it. They inherit and transmit also to their daughters, the valuable qualities of their dams, weight, feeding capacity, constitution, etc., and so we have great improvement, and may look for still greater. The horse shown in the engraving recently won the first prize as a three-year-old at the Derby Royal Agricultural Show, and has twice been champion stallion at the Horse Show in London. In show order, he weighs two thousand five hundred and twenty-six pounds—a truly enormous weight for so young a horse. He is seventeen hands and one inch high, ninety-eight inches in girth, one hundred and two inches around the belly. His fore-arm measures thirty and a half inches around, and the fore-leg below the knee twelve and a half, the hind-leg below the hock fifteen, the thigh above the hock twenty-four and a quarter, and his hight to top of quarters is sixty-eight and a half inches. He is the property of Mr. Walter Gilbey, the President of the English Shire Horse Society. When this stock is acclimated in this country, and improved by breeding, we may expect it to become the foundation of a valuable race of work-horses.



AN OLD ENGLISH SHIRE HORSE.—*Engraved for the American Agriculturist.*

The North Carolina Phosphates.

DR. CHAS. W. DABNEY, DIRECTOR NORTH CAROLINA EXPERIMENT STATION.

The phosphates recently discovered in North Carolina will undoubtedly take an important place in the trade, and, in time, reduce the cost of all superphosphates. This North Carolina rock is very massive near the surface, and convenient to the lines of transportation. That it is found in sand and not in clay, as is the South Carolina rock, is a point very much in its favor. The latter rock is so porous and full of holes, as to require breaking up and washing, to rid it of the clay. The North Carolina rock lies in a sand or loam, and can be dug out in large rounded lumps, from which the sand may be brushed off without difficulty.

In South Carolina, the rock is mined in open ditches, thrown out upon the bank with the accompanying clay, and a large per cent of water, and wheeled to the railroad, and shipped on cars to the washing and drying works. At the washing establishment this rock is broken, run through a washing machine, fed usually by a large force-pump, and finally dried by artificial heat. The North Carolina rock is easier to mine from the loose sand or loam. It occurs at about the same depth, but the amount obtained per acre is much greater. In a number of trial pits, the yield was eight hundred tons per acre. This is a very remarkable output. The North Carolina rock can be delivered on the bank, and loaded on the cars with only four per cent of earth adhering to it. A simple brushing-machine will remove this.

Rock in this condition, directly from the pits, contains not exceeding one per cent of water. South Carolina rock is always dried twice, once by the miner before it is sold, and again by the manufacturer. The North Carolina rock would not need drying at all, except to make it grind better. The great saving in preparing the rock for market is thus apparent. While six dollars per ton is the lowest figure ever reached by South Carolina phosphate rock, this North Carolina rock can be sold, delivered on the railroad, at three dollars and fifty cents per ton. When we recall how great the reduction in the price of all fertilizers has been since the South Carolina phosphate mines were opened, the significance of this discovery for all farmers, who buy any manures, based upon superphosphates, will be apparent. The first North Carolina phosphate found was of low grade, containing from thirty to forty per cent of phosphate of lime. Recently extensive beds have been discovered, yielding rock fully equal to that of South Carolina, of which fifty-five per cent is the usual standard. The rock crushes and grinds well, as it is extremely brittle. This latter property is due to the small per cent of sand, which is the leading impurity, and of all adulterating materials the one least objectionable. The South Carolina phosphate is mixed with carbonate of lime, oxide of iron, and alumina, all of which combine with sulphuric acid, when the rock comes to be made into superphosphate. Acid must be added for these as well as to dissolve the phosphate, and when it has been dissolved, they are the main cause of that retrograde action, known as reversion of phosphoric acid. The North Carolina rock contains very little carbonate, iron, or alumina, and requires one-fourth less acid than the South Carolina rock. The sand is entirely neutral toward the acid. This is another point in favor of the North Carolina rock, which farmers as well as manufacturers will appreciate. These phosphatic rocks have laid in their beds for untold ages. The virgin soil of a new country did not need them. Wasteful farming soon exhausted the soil, and when needed to return lost fertility, these phosphates came to light. So when whales became scarce, and oil dear, heretofore unsuspected stores were discovered. What else has nature in store for us?

Why the Potato Experiments Differ.

We have a great variety of experiments with seed potatoes, from experiment stations, model farms, and amateur farmers, showing the great advantage of large and small potatoes, seed-end and stem-end, whole seed and cut, eyes with much flesh, and mere parings; leading the reader to contradictory conclusions, and making of the seed question a muddle. In many cases the story is only half told, and the factors in the case, aside from the particular treatment of the seed, are overlooked. The condition of the soil, fine or lumpy, rich or poor, the character of the season, wet or dry; the cultivation, little or much, have quite as much to do with the success of the crop, as the state of the seed. The contradictory results so often reached by intelligent and fair-minded men, emphasize the great importance of a thorough preparation of the soil, making it well pulverized, well manured, and well drained. Maximum crops, three hundred to five hundred bushels to the acre, can only be had where there is this thorough preparation and suitable tillage, until the vines are in blossom. The average yield of potatoes in many farming districts with any treatment of seed is not much over a hundred, if it equals it.

Walks and Talks on the Farm.

New Series.—No. 1.

JOSEPH HARRIS, M. S.

It is over eight years since the last number of my "Walks and Talks on the Farm" appeared in the *American Agriculturist*. Since then, my good friend and neighbor, the Deacon, and I have had many walks and talks together on the farm. The Deacon's farm has greatly improved. A portion of his land has been underdrained and produces splendid crops. He plows earlier and cultivates more thoroughly, and if he is not careful he will soon be a model farmer. I do not think he keeps any more stock or makes any more or better manure, but he grows better and cleaner crops simply because he works his land better. Like most of the farmers in this section, he has been using more or less phosphates, especially for winter wheat. Sometimes he thinks it pays and sometimes not. The truth is, that nearly half of my farm and the Deacon's consist of low, mucky land which, if partially drained and well worked, will yield good crops with little or no manure. Last year the Deacon raised an acre or more of good winter cabbages on this black mucky soil without any manure. And land which is rich enough to produce good cabbage, certainly will produce ordinary farm crops, such as corn, oats, potatoes, and grass. Adjoining the cabbages, on similar land, he sowed a few acres of millet and had a splendid crop; the land was left remarkably clean and in good condition. The other half of the Deacon's farm consists of higher, drier, and poorer land—but which, when thoroughly cultivated and kept free from weeds, will produce good crops of wheat, beans, corn, and clover.

I have always told the Deacon, that the best way to manage his farm was to keep more stock and make more manure, even if he had to buy bran, malt-sprouts, and corn, to feed the animals in connection with the coarse fodder raised on the farm. I have not converted the Deacon and never shall, though I felt strong hopes of him last spring when he set out an acre of cabbages. He had so much success with them, that doubtless he will continue to grow cabbages as a farm crop for years to come.

On my own farm there has been no change in the management during the last nine years. I continue to keep a large amount of stock, and to buy considerable food for them, especially that which will make rich manure. I have adopted this method for about twenty years, and I see no reason for changing it.

Even the Deacon agrees with me now, that the plan, in my circumstances, is a good one. He criticised me formerly, because he did not understand what I was aiming at. He thought I was buying feed and consuming nearly everything that I raised on the farm, in order to make manure for growing ordinary farm crops. He thought it would not pay. He may be right, though I think much might be said on the other side.

In my own case, however, I use manure for growing mangel-wurtzel, beets, carrots, parsnips, cabbages, onions, and similar crops, which can only be grown on the richest and cleanest of land. During the last eight years, I have greatly extended the area of land devoted to these crops. I can not compete with the Rochester nurserymen in buying manure from the city stables. It is too far to draw it and they take all there is. I am obliged to make my own. What I make is far richer in plant-food and more valuable than any I could buy. During the last eight years the price of superphosphate has been reduced and the quality improved. I use it freely and with great advantage.

The Deacon and I are eight years older. Twenty years ago this spring, I set out about a hundred Norway spruces. They are now over forty feet high. They are beautiful, healthy, and vigorous. When I think how small they were when I set them out, and what magnificent trees they are now, I feel that the years are steadily advancing and that I must be getting older. So of my Northern Spy apple orchard. The trees have grown until the branches almost meet, and what is better, they bear fruit abundantly every year. There has been no change in the management of the orchard during the last seventeen years, during which time it has been in grass. The trees were set out in 1857, and for the first ten years the land was planted with corn, potatoes, etc. Since the trees commenced to bear, the land has been kept as a pasture for sheep and pigs. It has been repeatedly top-dressed with manure. And whenever we have any weeds or rubbish of any kind, it is drawn into the orchard and spread over the land. It is convenient to have such a place. We are never at a loss where to put weed-seeds, coal-ashes, refuse lime, turnip, beet, and cabbage leaves, carrot and parsnip tops. Anything that will make manure or mulch the land, anything that the pigs will eat in whole or in part is taken to the orchard. In this way the land has become exceedingly rich. In the spring, the moment the snow is off the land, the grass begins to start and we soon have a fine bite for the ewes and lambs. And all through the season, no matter how dry it is, we are always sure of a little good pasture in the orchard. I am so well satisfied with the advantages of this method of managing an orchard, that I have set out several acres of apple trees near the barn-yard, with the ultimate intention of seeding it down to grass and keeping it as a permanent pasture. In the meantime I keep the land between the rows of trees under cultivation. In fact, I am using the land as a Field-Garden. It is heavily manured, carefully and repeatedly plowed late in the autumn and early in the spring, and worked into the finest condition for hoed crops, drilled in wide enough apart to admit the use of a cultivator. We only cultivate one way; and between the rows of apple trees, running in the direction in which we cultivate, we set out currant bushes which now bear large crops. It takes a good many years to make our dry, sandy upland rich enough for permanent pasture. But I think the above method will accomplish the object, and in the meantime much more than pay its own way. I do not say that this is the best method of preparing land for a permanent pasture. It depends on circumstances.

Five years ago I was at Rothamsted, after an absence of thirty years. Mr. Lawes, or Sir John Bennett Lawes, as he now is called, in recognition of his pre-eminent services in the field of agricultural research, has converted many acres of the land formerly under tillage into permanent pasture. A fine herd of Hereford steers were grazing on the land. It was stocked heavy enough to keep the grass well cropped, and the steers were fed every day all the American cotton-seed cake they would eat. Of all vegetable substances, there is nothing which makes such rich manure as cotton-seed cake. It may not be as nutritious as linseed cake, but it is richer in nitrogen, phosphates and potash. And as Dr. Vœlcker well remarked, it has this practical advantage: You can feed fatting cattle or sheep all they will eat. They will not eat too much. With linseed-oil cake, corn and other grain, as we all know, we have to be careful every day to measure out the proper allowance. It is necessary to have a reliable man do the feeding, or some days the animals will get too much and some days too little, and their digestive organs are soon out of order.

In process of time any pasture land stocked with cattle or sheep having an unlimited supply of cotton-seed cake, must get very rich, and there are many places in this country where the plan could be adopted to advantage. Such, for instance, as the so-called barrens of Long Island, and hundreds of thousands of acres on the Atlantic slope. There is also much hilly land which is now comparatively unproductive, and on which it would be an expensive operation, even if we had it, to draw manure. This poor land may be slowly and surely reclaimed by stocking it with sheep or cattle, and feeding them all the cotton-seed cake they would eat.

Since we last wrote these Walks and Talks on the Farm, the subject of ensilage has attracted much attention. Its success is mainly due to the fact that corn fodder is one of the most profitable crops which can be grown for feeding cattle, horses and sheep. The advocates of ensilage have done much good by calling attention to the great value of corn fodder. Whether it is better to cure the fodder or to preserve it in the green state, is a question of cost. One fact should not be overlooked; our dry, hot climate is admirably adapted, not only for growing the corn-fodder, but also for curing it. I cut my corn-fodder with a self-raking reaper, tie it into bundles, stand it up in small shocks, and afterwards put nine of these shocks into one large central shock, carefully made and tied at the top with willow or rye-straw bands. If properly made, the corn-fodder keeps perfectly in these large shocks, and can be drawn in from time to time during the winter—drawing, of course, as much at one time as can be properly stored away.

One of the most remarkable changes which has taken place in our agriculture during the past eight years is the general use of superphosphate for winter wheat. That it pays the farmers to use it, there can be no doubt. Farmers are not inclined to make accurate experiments; but they do not continue to pay out money year after year for an article the use of which is unprofitable. How long the use of phosphates will continue profitable, will depend on the amount of organic matter existing in the soil, and upon the use which is made of the increased crops obtained from the use of the phosphates. If all the crops are sold off the farm, we should soon, except in rare cases, so far impoverish the soil that profitable crops could not be grown. On the other hand, if we use the money obtained from the increased crops of wheat, barley, potatoes, vegetables, etc., to buy a small amount of bran, cotton-seed cake, malt-sprouts, etc., to feed out in connection with our straw, corn-fodder, clover hay, etc., the use of phosphates will enrich rather than impoverish the land.

Year before last the wheat crop in this section was the best I have known for thirty-two years. The Deacon has lived here much longer than this, and he says he has never before known so good a crop. And farmers who cleared up the land from the original forest say the same thing. One of them told me—and he is a reliable man—that he got fifteen hundred bushels of wheat from thirty acres. It was not phosphates in this case; he drilled in ashes and plaster; but it was not ashes and plaster that produced the crop. Whatever the cause, it is evident that our soils are still capable of producing good crops of wheat.

One thing is certain, our farmers as a rule are working their land better than formerly. We have better plows, better cultivators, better harrows, better rollers, and better horse-hoes, though the latter are not half as good as they ought to be. We do more fall-plowing. Even the Deacon harrowed his corn-stubble last fall, and got it ready to drill in oats this spring. We are getting more and more in the habit of preparing our land in the autumn. The Deacon is not here to-day, or perhaps he might dispute some of these statements.

"Hard times"—I should say so. But the American farmer is not a grumbler—certainly not when he has good cause to grumble. He is one of the most hopeful and energetic of men. Last year, he had no wheat, no beans, no fruit. He had good potatoes, but the price was so low that they hardly paid for digging and marketing. He had a great crop of oats, and a fair crop of hay, but the crops he depended on to bring in the money were essentially a failure. My own wheat crop was the poorest I have known for thirty-four years. But we have lived through it. And to-day (June 2), the country never looked more beautiful, or the prospects brighter. Some farmers say the dry weather in April gave the wheat a set-back. But, as a rule, our wheat never looked better. We feel decidedly encouraged, and look for better times.

I was in New York last week, and called at the *American Agriculturist* office. They seemed pleased to see me. The truth is, the editors look more like farmers than city people. The managing editor was in his shirt-sleeves, and works as hard as any

farmer I know. I was not surprised to learn that the *American Agriculturist* was never in more prosperous circumstances than at the present time. It is certainly a noble paper for everybody.

Fine Action and Good Gaits in Horses.

Good gaits and fine showy action in a horse add greatly to his value. They are not altogether brought about by training, though this does a great deal. Many a well formed man, especially if he grew fast when a boy, and was laughed at and felt awkward, goes through life with the style of a shy, shambling, bashful lad. Very likely he never stands erect, carries one shoulder higher than the other, his head on one side and even walks half sideways and does not know it. It is just so with horses. If a farmer's team comes into the city trainer's hands at four to six years old, even if dull, stupid, and logy, they will wake up to business, and in two months even their breeder will not know them. They will hold their heads high, pick up their feet with life and put them down as if they were not afraid. Altogether there will be the style of life and training, as if they knew they were well trained and were proud of the show. At seven or eight years old it is too late, they will be a plow team to the end. This sort of style is all but essential for carriage and road horses, but another sort is needed for the particularly useful gaits of horses of all work, namely, the walk and the trot, both in carrrying heavy loads and with very light ones.

All the training in the world will not give a horse good legs, and with this wanting, the spirit and the sort of style which is developed by training and oats, counts in real work and service for very little. A horse needs both, and then there is some hope for him. With a good set of legs the trainer has the right foundation to build upon. It is quite a "point," as they say "on the street" to know good legs when you see them. It does not take an expert to tell if a set of legs look all right from the side, when the horse is either still or in action, but the real points of views to judge critically are directly in front or behind. We give three styles of legs by which all may be classified, as they vary from the perfect form towards either extreme. No. 1 in each set represents the perfect pair of legs. The feet point directly forward, are round, well up at the heels, large, solid, and free from either grooves and ridges running up and down, or from irregularity in the lines of growth, which always form fine parallel striæ in a healthy hoof. It is a suspicious circumstance if these are filed off and the hoof made smooth. The fact is, nothing is a surer index of previous good health than the hoof. If a horse has a fit of sickness the hoofs

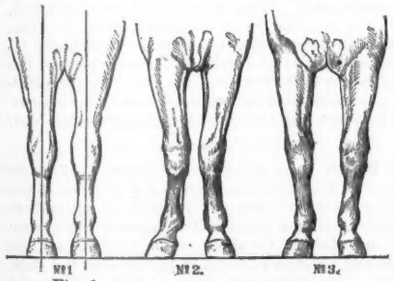


Fig. 1.—GOOD AND BAD FORE-LEGS.

cease growing, and when they begin again with returning health they all show a ridge, so if from any cause one foot is effected by fever, or a wound, it alone will show it almost certainly by increased or decreased growth, as the case may be. The joints are large, hard, bony, and free from meat or puffs. Below the hocks and knees the bone of the leg is flat, and of good size for the weight of the animal; the cords are hard as bone, free from muscle, and the skin free from scars and drawn tightly over the whole. Avoid slender pasterns. The pastern bones and those forming the pedal joint should have all the breadth and solidity possible. The muscular portion of the legs—the fore arms and the thighs—should be large and even, and the muscles should stand out individually distinct and hard. The whole leg should be almost perfectly straight, that is perpendicular, as indicated by the lines drawn through No. 1 in each set.

When the hoofs point out, the knees and hocks tend inward, as shown in No. 2 of each set, and when the hoofs point in the knees and hocks are thrown outward in a less obvious, but yet in an awkward way. This is shown in No. 3. With the

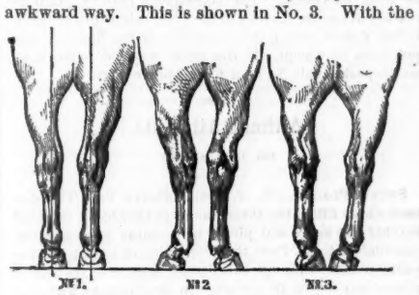


Fig. 2.—THREE SETS OF HIND-LEGS.

idea clearly in his mind and a little observation, one will soon be able to recognize a good and also a bad set of legs on almost any style of horse.

Fill up the Vacancies.

Hills are sometimes missing in the corn-field, from poor seed, crows, cut-worms and other causes. It does not pay to leave these places vacant. If replanted, they may produce good fodder, even when too late for ears to form. Idle land will produce a crop of weeds, which, by going to seed, bring trouble for many succeeding years. It is well to replant with a smaller and quicker growing variety, that will yet have time to mature. The two sorts will not mix badly, because the periods for crossing come at different times. The appearance of a corn field is much improved by filling up the vacant hills. We have known of replanting being done as late as July, and the labor rewarded with a fair crop of soft corn for the pigs, besides a heavy growth of excellent fodder. A considerable area where corn or some other crop has failed may sometimes be profitably sown to buckwheat.

Feeding the Silk-worm.

M. J. G. HAMMACK.

There are three kinds of silk-worms: Annuals, Bivoltines, and Trivoltines. The Annuals produce but one brood a year, Bivoltines two broods, and Trivoltines three. After considerable experience we are satisfied, that the last two breeds cannot be raised as profitably as the pure Annuals. Annuals' eggs will not hatch prematurely, but the hatching cannot be deferred for any length of time, after the trees are in leaf, except by using ice, in which case the vitality of the eggs is more or less injured. It is necessary, in any climate, to watch the advance of the mulberry tree in the spring.

The following are some of the terms used in silk culture: grain is silk-worm eggs; the cocoonery is a house where the worms are raised; moulting is the time at which the worms change their skins. Chrysalis is the form assumed by the worm inside the cocoon. Floss silk is loose silk that envelops the cocoon, and is carded and spun like cotton. The cocoon is the silken covering with which the worm surrounds itself before passing into the chrysalis state. Raw silk is silk that is reeled from cocoons. The ages are periods between two moults; green-cocoons is a name frequently applied to fresh or unchoked cocoons. Pierced cocoons are those that the moth is allowed to perforate, and are sold for waste silk. Choked cocoons are those stifled, or have the chrysalis killed, by steam or in the hot sun. Litter is the accumulation where the worms lay, of dried and partly consumed leaves, and offal of the worms themselves.

GATHERING THE LEAVES.—If the trees are desired for standards, at two years old, they may be stripped of their leaves. The leaves must not be gathered before sunrise or after sunset, when dew or fog makes them damp. They should be gathered before nine o'clock in the morning for the day's feed, and before seven o'clock in the evening for the morning's feed. If leaves are dusty, they should be wiped with a dry cloth. In case of threatened rain, leaves may be gathered two days ahead, and kept in a cool place. If it should become a necessity to gather leaves in the rain, spread them out on the floor in the shade in an airy place, or dry them by shaking in a sheet. Give to the young worms the best, tender leaves, after the second moult. After the last moult, give to the worms the thickest and best leaves the trees produce.

Silk-worms should be fed during the day and night, from the hatching to the spinning time. Give them all they can eat, at regular hours. Worms matured in twenty-five or thirty days will produce more silk, and of a finer quality, than those fed forty days, and the short-lived worms are less liable to disease. Worms will never leave the feeding shelves if properly fed. The worms should receive light meals, first, at six in the morning; second, at eight; third, at ten; noon, two o'clock, four, six, eight, and ten. In very warm weather, an extra feed should be given at midnight. On cool days the worms will consume less food than in warm ones. The young silk-worms should have one single layer of chopped leaves for their meals, and if these become dry, feed again in half an hour.

Raising Seeds.

We are asked why we do not encourage people to raise their own seeds, instead of buying them every year. Seed-raising is an art, and requires more care than the average farmer can afford to give to it. Seedsmen have their seeds raised by men who make a business of it, who grow but one variety of a kind, and avoid all chance of "mixing" or crossing. One who has a garden can hardly be persuaded to select his first ripened tomatoes or Lima beans for seed; he wishes these for the table. Unless a vegetable can be kept up to its best condition it will deteriorate. Take tomatoes for example; the plants should be raised expressly for seed. As soon as they come into bearing, every plant that does not have fruit quite up to the best of its kind in form and productiveness, is to be pulled up, and all malformed fruits on those that are left, are cut away. Then only the earliest clusters are allowed to ripen, those which set late are cut off, and the whole strength of the plant directed to ripening the first fruit that is set. Take squashes for another example, and it is the same with melons, cucumbers, and all of the family. Few who have gardens content themselves with a single variety of squash. There are few plants so likely to mix, through the agency of bees. We know of a case in which the Hubbard Squash had been grown in the same garden with other squashes for several years, and the seed was yearly saved and planted. At the time we saw the squashes, they were mostly yellow, and instead of the pointed end, so characteristic of the Hubbard, many of them had the broad, flat, blossom end belonging to other kinds; indeed there was not a typical Hubbard in the lot. If seeds are to be raised, that should be the leading object for which the plants are grown. It is poor economy to sow seeds of doubtful purity, in order to avoid a small outlay for those of good quality.

Green-House and Window Plants.

All repairs, painting, etc., should be done to the green-house in good season. If plants are kept in the green-house, give all needed shade and watering.....Plants outside, whether from the green-house or the window-garden, should have proper care, shade the pots from the hot sun by placing boards against them; give water freely, repot, if an inspection of the ball of earth shows that they need it; turn the pots occasionally to break off any roots that have run through the hole in the bottom of the pot.....Insects often do much mischief to plants in pots, and must be removed.....Make cuttings of plants of which a fresh stock is required.

The Need of the West.

The West needs more live-stock. That those States and Territories which grow an abundance of natural pasturage for twice the stock they now have, are in need of more animals, is evident. But that those States in which the range is restricted are in need of more stock, can be demonstrated on the basis of their over-production of corn. While all the States of the West produce more corn than is consumed at home, only Kansas and Nebraska produce a large surplus for export; and we shall consider these only, although the conclusion reached will apply to other States with a force proportionate to their surplus. In 1883, Kansas produced 172,800,900 bushels of corn, of which amount 77,760,405 bushels, or 45 per cent, was retained for home consumption, while 95,040,495 bushels, 55 per cent of the entire crop, were exported. In the same year, Nebraska produced 101,272,900 bushels: of this, 59,854,551 bushels, 59 per cent. of the whole crop, were retained for home consumption, while 41,524,349 bushels, 41 per cent. of the crop were exported. Thus, of their crops for 1883, these two States consumed at home, 137,514,956 bushels, and exported, 136,564,844 bushels, practically half the crop. During this time, the railroad charges for corn from Kansas City to Chicago, were, by the car-load, 20 cents per one hundred pounds. At this rate, the cost of transporting the surplus corn of Kansas, from Kansas City to Chicago, would be $10,644,535.40. During the same time, the railroad charges for transporting corn from Omaha to Chicago, were 25 cents per hundred pounds; at this rate, to transport the Nebraska surplus from Omaha to Chicago, cost $5,813,408.86. The cost of transporting the surplus of both States to Chicago, was $16,457,944.26. If this surplus had been reduced to pork, at the the rate of ten pounds of pork to each bushel of corn, the product would have been, 1,365,648,440 pounds—950,404,950 pounds from Kansas, and 415,243,490 pounds from Nebraska. During the period of exportation, the railroad charges for transporting live hogs from Kansas City to Chicago, were $42.50 per car-load of 20,000 pounds. At this rate, it would have cost $2 019,600 to transport from Kansas City to Chicago, the Kansas surplus of corn, if it had been in the shape of pork. During the same period, the railroad charges for transporting live hogs from Omaha to Chicago, were $70 per car-load. At this rate, to have transported from Omaha to Chicago, the Nebraska corn surplus in the shape of live hogs, would have cost $1,453,340. The cost for the two States, would have been, $3,472,940, a saving on freight alone, by transforming the corn into live hogs, of $12,985,004.26, or almost 400 per cent. But to this, it may be objected that all this surplus did not reach so far east as Chicago. This is true; but the cost of transporting the corn from the various points in these two States to Kansas City or Omaha, would far more than compensate for this, as the transportation tariffs are heavy for short distances on branch roads.

Some of this corn went east of Chicago. Let us calculate what would be saved on the transportation from Chicago to New York, of one million bushels of corn, by changing it into live hogs. The railroad charges last year for transporting grain from Chicago to New York, were 30 cents per one hundred pounds; at this rate, the cost of transporting 1,000,000 bushels of corn, would be $168,000. Transformed into pork, the transportation would cost 35 cents per hundred pounds, or for the million bushels in this shape, $35,000; a saving of nearly 400 per cent.

These figures show plainly why that portion of the West which produces a surplus of corn above home consumption, needs more live-stock. The saving in transportation alone, when the corn is converted into live hogs and shipped in such form, aggregates an enormous amount, and if it were put into the form of beef or mutton, the saving would be substantially the same. Cattle are shipped from Omaha or Kansas City to Chicago, at a less rate than hogs, and sheep at the same.

But every bushel of corn shipped, represents so much fertility taken from the soil, leaving nothing to replace it. The West needs live-stock to maintain the fertility of its land. Without stock, the more intensive the farming, the larger the crops, and the more rapidly will the land be impoverished. So long as the West is without live-stock to consume its productions at home, just so long will the impoverishing of the soil continue. On the other hand, the fertility of the soil may be maintained by feeding produce to farm animals, saving and applying their manure, liquid and solid, and reinforcing this with a little green manuring. The value of this animal manure, which would represent just so much gain to the farmer, can not be accurately calculated. But as we have made our former calculations upon the basis of a production of ten pounds of live pork from each bushel of corn, we would have 46 pounds of manure for each bushel fed, estimating a bushel of shelled corn at 56 pounds. This would have given Kansas and Nebraska 3,139,500 tons of animal manure, if the surplus corn of last year's crop had been fed to hogs. These States need all the fertilizing materials at their command to keep up the land, hence they need live-stock to consume surplus production.

Passing over with only a mention the profitable work offered by stock-raising, at a season when grain demands no attention, we wish to notice another particular wherein more stock would be advantageous to these States. One travelling through these States, is struck with the lack of cribs and granaries. As a result, the farmers are compelled to sell their surplus grain as soon as it is harvested. The consequent rush of grain to market at certain seasons of the year, brings prices down to low figures, which the necessities of the farmers compel them to accept. If the grain was fed to stock, it, so-to-speak, could be held for a higher price.

Animal Ailments.

DR. D. D. SLADE.

SWINE PLAGUE.—E. T. Beall, Liberty, Va.—The disease which killed the three fine hogs that had a range of seventy-five acres and plenty of running spring water, was undoubtedly, from the description of symptoms, the swine plague, although this disease may have its seat in almost any organ, its presence in the lungs to a greater or less extent, is now considered as characteristic. Treatment in our present knowledge of the affection is not to be considered—the disease is highly contagious. Warts may be safely destroyed by tying a strong thread about their necks, or by cutting them off with scissors, and touching the surface with lunar caustic or blue stone.

MANGE IN DOG.—Mrs. H. A. Fink, Westerly, R. I.—The Gordon setter undoubtedly has skin acari, or animal parasites, which burrow in the tissues, and cause great, and uncontrollable itching, as well as scabs and sores upon the surface. Oil well the surface affected, and then with soapsuds (castile soap is preferable) remove the hardened crusts. Apply once a day, a small quantity of sulphur ointment, well rubbed into all the parts of the skin where the eruption has made its appearance.

NAVICULAR JOINT DISEASE—RINGBONE—THICKENED SINEWS.—C. L. Linsley, Bellows Falls, Vt.—In the very early stages of the Navicular disease, rest at pasture may give the parts a chance to recover. A wet pasture free from stones is preferable. Remove the shoes—or the animal may be kept standing in wet clay in the stall during the day time, and removed to a dry stall at night. If the disease has gone on to ulceration, the cure is longer and more uncertain. A seton through the frog, which must be passed by a competent person, is sometimes of service. If the lameness continues after a month from the removal of the seton, this treatment at least, is useless. The seton should remain in place for four or five weeks. In the treatment of Ringbone, rest is often essential in the early stages—allay the inflammation by soothing measures, such as fomentation of the parts, and then blister, when soreness and heat have lessened. When this disease is in the fore leg—the heel comes to the ground first, and a thin-heeled bar-shoe must be put on. If, on the contrary, the animal walks on his toe, as when Ringbone occupies the hind limbs, a high-heeled shoe will enable him to travel more comfortably. Thickened sinews in the first stages, may be benefited by rest at pasture, and by blistering occasionally. The disease is due to strains and over exertion, and very rarely do the parts assume their original, normal condition, and when benefited by treatment, are prone to return to their unnatural state when the animal is put to work.

BLACK LEG IN CATTLE.—A correspondent from New Mexico, advocates the removal of the tail and ears in cases of real or supposed Black Leg in cattle. Whereas, in the very early stages, bleeding, properly performed, may be advisable, it seems to us a rather heroic, if not barbarous treatment to subject every suspected animal to the above operation. At any rate, this proceeding would not be satisfactory to humane people.

SWOLLEN HEAD IN PIG.—G. M. Wertz, Johnstown, Pa., has a pig six months old, with face and head swollen to an extreme extent for at least three weeks. The pig is of common stock, has not refused food, but eats indifferently. This condition is evidently due to a scrofulous disease of the bones, which become infiltrated with a jelly-like substance. In all probability the disease will prove fatal, if the diagnosis is correct. No treatment is advisable, as the animal thus diseased is unfit for breeding or for food.

SPRUNG KNEES IN HORSES.—J. H. Levy, Franklinsville, Gloucester Co., New Jersey.—The condition known as Sprung Knees, is indicative of over exertion, and of an undue amount of work which has been thrown upon the ligaments of the fore-limbs. It is usually impossible to fix upon any one portion as being at fault more than another, where the entire limb participates in this abnormal state. Undoubtedly there is an hereditary tendency in some horses to take on this peculiar condition. No treatment can be of any avail, and beyond the unsightly appearance caused by the trouble, the animal is not, as a rule, materially injured for moderate work.

UMBILICAL HERNIA.—W. H. Allen, Calais, Maine. The bunch formed on the belly or navel is undoubtedly a rupture, a condition not uncommon in this region of the body in young animals. A correct diagnosis may be obtained by gently kneading the contents and at the same time endeavoring to push them up into the abdomen. If they return with a gurgling sound, it is a rupture. To keep the intestines in place, make a soft pad of folded cloth or any similar material, and attach it with sufficient pressure to a band passing round the body and fastened to a similar one running round the neck. Blistering the parts repeatedly is sometimes effectual, when the rupture is not large, and not of long standing. The bunch should by no means be punctured.

FOUNDERED HORSE.—"Cincinnatus," Cincinnati, Ohio. The term foundered is used very indefinitely, and conveys ideas that are apt to be very confused. The disease to which the word should be restricted consists of inflammation of the sensitive portions of the feet—which inflammation may be either recent or long standing. In the early stages of the affection, every effort possible must be made to subdue the inflammation, and to restore the parts to their healthy condition. For this purpose large poultices are to be applied to the feet, and the animal encouraged to lie down. In order to prevent conjestion, it is advisable in this early stage to walk the horse without shoes, on soft plowed ground. Where excessive tenderness and inflammation have set in, exercise is out of question. A mild laxative (not purging), should be administered—one-half an ounce of Aloes is most appropriate, followed by injections of water into the rectum if necessary. In very severe cases, bleeding from the cornet may be advisable. If the inflammation persists after two or three weeks, a condition known as chronic Laminitis follows, accompanied by various changes in the internal structure of the hoof. For this long rest at pasture, blistering, and the application of a thin heeled bar-shoe are the appropriate remedies. In the worse cases complete restoration of the foot to its healthy condition cannot be expected. The convexity of the sole must be counteracted by the use of a thick, broad, webbed bar-shoe, and the animal placed in the wettest pasture possible. Shorten the toes and lower the heels if necessary. The animal may be used for slow farm work on soft ground a long time before he is fit for use at a quick pace upon hard roads.

TUMOR ON THE NECK OF OX.—E. J. Burr, Royal, Nebraska. The tumor may be best removed by extirpation, which should be done by a surgeon. It is undoubtedly simple in its nature, and may be removed by the knife without difficulty. If this is not possible, on account of the want of an experienced hand to perform the operation, try the effect of some stimulating ointment, such as the Iodine, which may be procured of any apothecary.

NERVOUS IRRITATION OF SKIN OF HORSE.—Jno. D. Pryon, Windfield, Kansas. The animal is suffering from Neurosis, or nervous irritation of the skin, which shows itself more particularly under the influence of hot weather, and is accompanied by pimples or vesicles, which become broken by rubbing. For treatment a complete change of diet is advisable, which, if in the stable, should be restricted; a change to pasture may be advantageous. Give gentle laxatives, with green food, wash the skin daily with soapsuds moderately strong. If no improvement, after a few weeks of trial, give bicarbonate of soda in the drink, half an ounce per day. The chief objects in the treatment are to remove any offending substances from the intestines, keeping them somewhat relaxed, and to change the animal's entire diet.

A BRIGHT SPOT IN A DINGY STREET.—Business took us, a few days ago, through one of those streets in New York City that one never visits unless from necessity. It is a crowded thoroughfare where more than one half of the shops are beer saloons and gin mills, and the others devoted to junk dealing and small trades. The upper part of the houses are crowded tenements. One of the dingiest of the buildings retained as a relic of former prosperity a narrow iron balcony, running across the whole building, at the windows of the second floor. This balcony was occupied by a box for its whole length, perhaps twelve feet long and about a foot wide and high. The box had been filled with soil, upon which grass seed had been sown, and there were three young trees of the Ailanthus, one in the middle and one at each end, forming, with the fresh green of the grass and the tropical foliage of the Ailanthus, as pretty a piece of "sub-tropical gardening" as can be imagined. This green spot brightened up the street for a long distance, and afforded the eye a refreshing rest, after gazing upon the displays of the second-hand clothing stores. Whoever instituted that window box is a public benefactor, and we thank him for the refreshing glimpse of balcony-gardening he afforded us.

Boston Brown Bread.—Several housekeepers have asked for a recipe for Boston Brown Bread. The term "Boston," is applied in all New England cities to bread baked in conical iron pans. We give the recipe which has long been in use in the family of the writer. Inasmuch as the recipe came from Boston, the bread may be called Boston Brown Bread. At any rate, if there is any better bread than that made by this recipe, we should like to know how to make it: Indian meal, two heaping cupfuls; rye meal, two heaping cupfuls; milk, three cupfuls, scant; soda, one teaspoonful; salt, one teaspoonful; molasses, three-fourths of a cupful. Mix, and steam for five hours.

Self-Opening Gates.—Every few weeks some one, all the way from Maine to Oregon, asks, "which is the best self-opening gate?" Those who manufacture such gates should advertise them. We some years ago lived in a neighborhood where such gates were in frequent use. From our experience there, we would not have such a gate, if it were put up without cost. Those that open by the striking of a wheel of the vehicle against a lever, cannot endure the shock of repeated blows, and soon give out. In winter they are so clogged with snow and ice, as to be useless. But why have a self-opening, or any other gate? A gate is only of use to keep out stray animals. In all but newly settled localities, the law against allowing cattle to run at large, should make gates of any kind a useless expense.

The New Orleans Exhibition.—Though the full title reads, "The World's Industrial and Cotton Centennial Exposition," it will not be so exclusively confined to Cotton and Industrial matters, as generally understood, as its title might suggest. Abundant space is provided, and liberal prizes offered for horticultural and pomological exhibits of all kinds, not only from our own growers, but those of Europe also. Mr. P. J. Berckmans, President of the Georgia Horticultural Society, and the leading pomologist of the Southern States, left for Europe last month, as a special Commissioner to interest European pomologists and horticulturists in the New Orleans Fair. A better selection for this commission could not have been made, and we commend Mr. Berckmans and his object to European cultivators.

Stocks for the Cherry.—J. R. Osborne, Bethany, N. C. Cherries are separated into two classes: those with heart-shaped fruit, the Hearts and Bigarreaus, and those with round fruit, the Dukes and Morellos. The Mazzard, which you probably know as the small black cherry, makes the best stock for the Heart and Bigarreau varieties, while the sour red or pie cherry, is used for the round-fruited kinds. To preserve the seeds, allow the fruit to be thoroughly ripened; it is placed in a tub with water, and by a gentle pounding, the pulp is removed and washed off. The stones are then spread on boards to dry; afterwards they are mixed with sand, which is very slightly moist, and kept as cool as possible. It will probably be better, in North Carolina, to plant the stones in the fall, as even in Northern localities, it is difficult to keep them from sprouting before the soil is ready in spring.

How to Keep Eggs.—Eggs may be kept from late summer or autumn well into the winter, or even spring, but it is next to impossible to deceive the dealers, and very few consumers are deceived by them. "Limed eggs" have their regular market quotations throughout the winter, and usually sell at one quarter to one sixth less than fresh ones. They are limed by packing them into barrels or smaller casks, point down, and pouring on them the water from lime slacked with brine, to a thin milky consistency, using just enough to cover the eggs, so that the next layer can be conveniently placed upon these, and then more lime-water added. When the cask is full, the eggs must be covered with a cloth and this spread over thickly with the pasty lime, then, if the water evaporates, or if the pasty lime cakes and cracks, more water must be added. It is essential that the eggs should be perfectly fresh, clean, and sweet when packed, or the whole lot will go wrong. There is probably no better way of keeping eggs for market than this. For family use they may be greased, dipped in hot paraffine wax, scalded, and perhaps preserved in other ways. The lime and salt liquid imparts no flavor, and does not deface the egg, which, when offered for sale, has a slight chalky appearance foreign to and distinguishes it from a fresh laid egg.

Chat with Readers.

Is Sulphur a Good Fertilizer for Fruit Trees? asks *S. Deal*, Seneca Falls, N. Y. Sulphur is of no value in supplying plant food, though it may be of use in destroying and preventing the growth of fungi, and thus benefit the trees by keeping off their enemies.

"Old Subscriber," Basking Ridge, N. J., asks us for reference to a back number, and also where a market can be found for old coins. Had the name been given, we could have referred the writer by letter to September, 1879, and also given the name of a dealer in coins. It is against our rules to advertise coin dealers and others in these columns.

Lime or Ashes with Guano, etc.—*J. C. Norris*, Huntsville Conn. When lime or ashes is mixed with guano, hen manure or other fertilizers containing ammonia, or readily yielding it, there is a loss of a valuable constituent. If the soil needs lime or ashes, sow the other fertilizer first, and when that is well incorporated with the soil, the lime or ashes may be applied without loss.

Removing Varnish.—*M. F. Carlton*, Chicot Co., Ark., asks how to remove varnish without the use of sand paper. Benzine will dissolve varnish readily, but as we are not informed what kind of a surface it is upon, it would be well to make sure that benzine will not injure the rest of the work. In using benzine, be cautious and keep away from fire or flame; the vapor mixed with air will explode.

Crude Petroleum and Kerosene.—*W. F. Brown*, Columbus, O., asks, if coal oil, or kerosene "is not as valuable for preserving fence posts as crude petroleum?"—By no means. Kerosene is a light volatile oil, which in time would completely evaporate from the wood. Crude petroleum, on the other hand, contains the non-volatile and preservative matter, which will remain in the wood.

Chestnuts for Planting.—*J. B. Gowdey*, Dallas Co., Iowa, asks us, "where can I get chestnuts for planting?" Chestnuts for seed should be procured in autumn, at the time they are ripe, mixed with an equal bulk of sand, and kept until spring in a cool place. There will be less danger from freezing than from heating. We have sent you by mail the addresses of several dealers, who may be able to supply chestnuts that have been properly kept for planting.

Lightning Rods.—In a former article upon Lightning Rods it was stated, that the lengths might be joined by welding. Several have written to ask, if round rods can not be united by means of screw couplings in the same manner as gas-pipes are joined. Certainly, a screw coupling will answer; we mentioned welding, as the average country blacksmith can more readily join the rods in this way than in any other.

Pinching Tomato Vines.—*C. H. Tufts*, Wakefield, Mass. If tomato vines are allowed to bear all they will, the frost will arrest their growth with a heavy load of green fruit, from that just set, up to that nearly ripe. Had all the clusters of flowers and young fruit been cut away, except that which could have ripened before frost came, the remaining fruit would have been larger, finer, and probably somewhat earlier, though the gain would have been more in quality than in time of maturity.

Screen for a Carp Pond.—*S. Schwartz*, Wynant, O., has a carp-pond, and would like to know how to prevent the young fish from escaping when water runs out of the funnel-shaped waste-way. We infer that the waste-way is built of wood, and it can be readily made safe by the use of a screen of wire netting, which can be had of any desirable fineness. As floating leaves, sticks, and other rubbish may clog this screen, it will be well to place in front of the netting, and a few inches from it, a screen of wooden slats, to arrest the floating matter before it reaches the wire.

Trouble with Currant Bushes.—*"Samuel Miller,"* Phillipsburg, Pa., sends us stems of a currant bush, which look as if they had been sprinkled with whitewash. These spots are thin white scales, under which, if examined early in the season, will be found minute red eggs. The same scale is not rare upon pear trees, but we do not recollect to have seen it on the currant before. It is known as Harris's Bark Louse. We should try the emulsion of kerosene, mentioned in the March *American Agriculturist*, page 114, applying it freely.

Almonds and Pecan Nuts.—*R. M. Gard*, Moultrie, Fla. The almond can usually be cultivated wherever the peach will grow, and is propagated in the same manner, *i. e.*, choice varieties are budded upon seedling almonds. It is also budded upon the peach and plum. As the Pecan grows abundantly in Texas, in a similar latitude to yours, so far as climate is concerned, it would no doubt flourish in Florida. It is said to be, like other hickories, very slow in coming into bearing from the seed. Trees of both Almonds and the Pecan, may be had at the large nurseries.

Time to Start Cuttings.—*Miss H. Gibson*, Petersburgh, Pa., asks us the proper time to start cuttings of flowers for winter blooming. As the kinds of plants are not mentioned, we can only give a general answer. Plants that grow slowly should have their cuttings made this month; for rapid growers, like verbenas, September will be early enough. The two methods mentioned in an article on "Cuttings from Unripe Wood," will either of them answer for ordinary bedding plants, though the "Saucer Method" will succeed better after the hottest days are over.

A Lot Overrun With Plantain.—In April last (page 154), we made use of the complaint of a subscriber in New Lisbon, N. Y., that he had a ten-acre lot "covered" with Plantain, as a text for an article on weeds. Now, Mr. F. H. Brinker, Medina Co., Ohio, suggests with reference to this lot, that seeding it down to Timothy grass, will kill out the Plantain. Otherwise, he suggests making use of the lot as a pasture for a few years. He says that in Ohio, both cows and sheep are fond of the Plantain when it is young and tender, and they keep it so well subdued, that it does not go to seed. Sheep are excellent weed exterminators.

Troubled with Wasps.—*J. R. Francis*, Fall River, Mass., having altered over an old house, is much troubled by wasps, which enter the rooms and are very annoying. Probably a search would discover the wasps' nests, which are sometimes built under the eaves, or in some part of the garret. When the nests are discovered it should not be difficult to destroy them. If the place admits of it, fumigation with sulphur fumes might be tried. Fumigation by burning Insect Powder (Pyrethrum), is said to kill mosquitos, and it would be worth while to give it a trial with the wasps—always avoiding the business end of the insect.

Railroad Horticulture.—The surrounding of the signal houses and other buildings of some of the railroads running out of N. Y. City, are decorated and kept in a manner highly creditable to the workmen, and pleasing to the passengers who pass over the roads. What were formerly waste places, disfigured by rubbish, are now laid out in lawns and grass plots, in which are beds of showy flowers and plants with ornamental foliage. There is room upon most railroads for improvement of the grounds around the stations. Some railroads have this done by contract, while the horticultural adornments seen on others, are due to the good taste and enterprise of the employees.

Squash Bugs.—*"C. H. Blair,"* East Palmyra, N. Y., wishes to know "how to keep the bugs off of squash-vines, especially the Hubbard." By "bugs," we suppose that our correspondent refers to what is known as the Squash-bug, *Anasa* (formerly *Coreus*) *tristis*, that solemn-looking insect, belonging to the true bugs. It is readily recognized by the horrible stench it gives off when disturbed or crushed. The last of the month of June, or early in July, these insects leave the places in which they have hidden themselves during the winter, and seeking the squash-plants, lay their eggs on the under surface of the leaves. The only remedy is, to catch and kill the female insects, and to crush the eggs, always upon the underside of the leaves. These are the best methods of keeping these insects in subjection.

Glass Insulators for Lightning Rods.—We have frequently stated that the use of glass insulators upon lightning rods was a useless expense, because as soon as they are wet by the rain, they cease to insulate. W. E. Godding, Norfolk, Mass., describes a case occurring in his town, which would seem to be an exception to the statement that insulators were useless. A copper rod was fastened to the house by glass insulators, the lowest of which was broken off. The lightning descended the rod, and when it came to the broken insulator, left the rod and entered the house, following the floor timbers, tearing up the floor, and went out in the direction of the well, about twenty feet from the house. This shows nothing as to insulators, but indicates that the rod had not a proper earth termination. The lower end of the rod was in dry soil, and the lightning merely took the shortest road to a good conductor, the water in the well. The lower end of the rod, which is out of sight, is really the most important part of a lightning rod.

Gapes in Chickens and Turkeys.—*J. W. Bailey*, Bridgeport, West Va., sensibly asks, how to prevent as well as to cure gapes. Our domestic animals, especially poultry, would need very little medication were the causes of their diseases generally understood, and preventive measures adopted. Chicks and turkeys are attacked when from four weeks to six months old. The disease shows itself, as its name implies, by continuous gaping; the chicks are dull, and cough and sneeze. When dead, numerous small worms are found upon opening the wind-pipe. Damp quarters, unwholesome food, and especially impure drinking water, are regarded as promoting the disease, if not the cause of it. A small feather has the plume stripped from all but about half an inch from the smaller end of the shaft; this is dipped in spirits of turpentine, and passed into the wind-pipe through an opening to be seen back of the base of the tongue. The feather is turned around once or twice and removed. A share of the worms will come out with the quill, while others will be thrown out by the coughing caused by the turpentine. After the worms have been removed in this manner, the young birds should be kept in a warm coop from the damp earth, and be fed upon warm soft food.

Cabbages and Club-Foot, or Clumping.—*J. E. Overton*, Port Jefferson, N. Y., asks us if we have known cabbages to be raised upon the same ground two years in succession, without "clumping," and if potash salts or plaster would be of any use in preventing the trouble. There are lands on the New Jersey shore, upon which cabbages have been grown for twenty years or more in succession, and no club-root has appeared. Finding this soil to be filled with minute fragments of shells, Mr. Peter Henderson suspected that these acted as a preventive of the cabbage trouble. In order to ascertain if lime in any other form would act in the same manner, he applied bone-dust, at the rate of a ton to the acre, to land that would not bear two successive healthy crops of cabbages. This was done side by side with a plot highly manured with stable manure, and both were planted with cabbages. On the manured portion, the plants were badly injured, while on that to which bone was applied, not an injured plant was noticed. Experiments are needed to ascertain if a much smaller application of bone would not prevent the trouble, and if lime in the form of ground shells may not serve the same purpose.

French Farming.

France is one of the richest agricultural countries of Europe. Its two hundred and four thousand five hundred square miles of area, produce both temperate and sub-tropical crops. The olive, the mulberry, and the vine flourish in the south, and in the north and northwest (the most fertile

THE PROPRIETOR.

part of Europe), the wheat and beet-root are the staple crops. The latter is a most important product, as it is upon it that the sugar supply of the country mainly depends. Beet-root sugar first became known in France when the wars of the first Napoleon closed the Empire to importations from America. Its manufacture is now one of the great industries of the country.

Unlike England, France is a country of small proprietors. The great revolution wrested the vast estates from their hereditary owners, and threw them into the market. They were then broken up and purchased piecemeal, and though many large properties have been gathered together since then, their number is small compared with that of the individual farms. The result of this condition of affairs, is that while in England wealth centres in the manufacturing districts, and the great cities, in France it is generally diffused over the whole country. In England the farmer pays heavy taxes and heavy rent. In France, he pays heavy taxes but no rent. He saves money, and there are few farmers indeed, who are not small capitalists. The extremely frugal habits of the agricultural people of France, aid in bringing about this result. In England, as in America, the farmer, though he may be a careful man, does not stint himself of necessities. He lives well, and he educates his children. In France matters are different.

Hard work and frugal fare are the rule with the French countryman. The "proprietor," as he is called, the master of the great farm, lording it over herds of fat cattle and fleecy sheep, does not pamper his body. On market days you see him at the village inn, admired and envied. He wears, as a holiday outfit, a clean blouse over his white shirt, with its tall collar, around which a satin tie is twisted; his pantaloons are of shiny broadcloth, his shoes of strong, fine leather, without a patch, and he carries a great silver-headed cane. He takes double as many lumps of sugar in his coffee as another man, talks in a blustering voice, and is universally respected and feared. These proprietors form a very rich and powerful class, but they are often ignorant to an incredible degree. They grow rich simply because the people beneath them are more ignorant than themselves.

To the misery of the poor in the French agricultural districts, no mere description can do justice. Like the condition of the English agricultural laborer, their's is one of black, hopeless privation. There are sections in which meat is an unknown article of diet to them. At best they get a scrap of it, and that of the cheapest kind, once a week. Bread of the poorest quality, and potatoes, form their staples of diet. The bread is generally baked in batches to last several weeks, and it is eaten even when bitter with mould. In the mountain districts of France, the agricultural poor supply the place of potatoes with a fungus picked in the woods, which is of a kind too coarse for market.

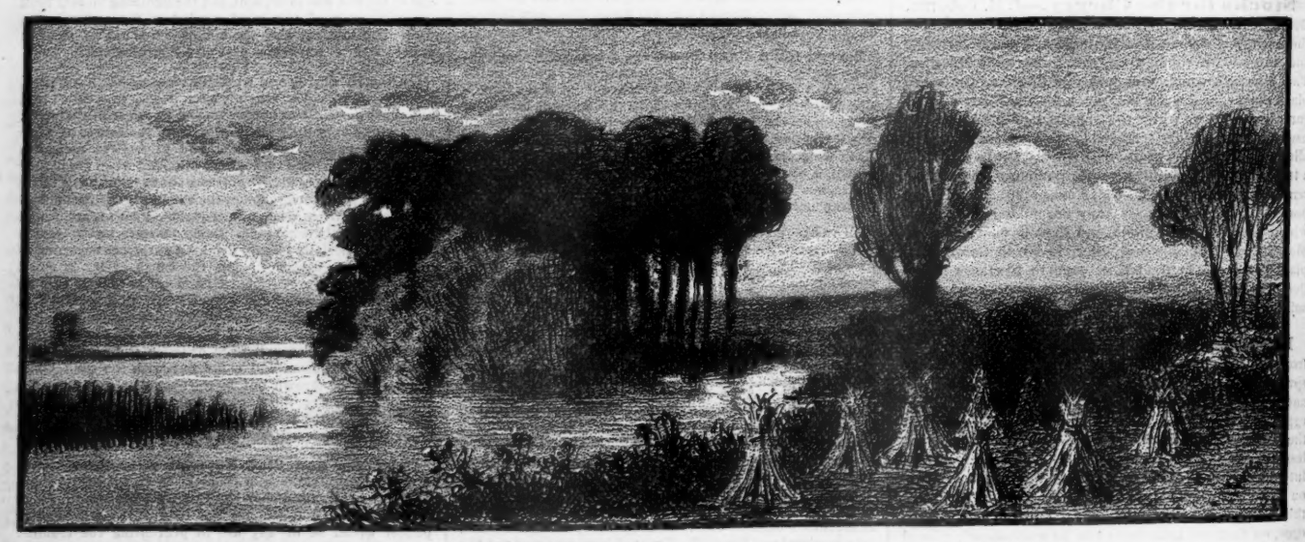
Thousands of the small farmers, however, live from choice, quite as poorly as their laborers.' The miserly instinct is a characteristic of some of the people. They save at the expense of their bodies and their minds. All that they raise in a condition fit to eat is sold; the rest they live on. The agricultural districts of France are very wealthy in money hoarded away by people whom one would not suspect of being anything but beggars, if they were encountered on the high-road. The holiday suit often lasts the farmer a lifetime. He only wears it on occasions of show, and is not ashamed of his working clothes. The types of country life in France are probably distinct from those of any other country in the world. In some sections, the men and women dress according to their employments, so that you can distinguish between the field and the stable laborer, the dairy women, and the house servant at sight.

The various implements now in use on the finest farms in France, would be considered old-fashioned across the channel. In the best sections, the plow is yet little better than that which the Egyptian uses to scratch the soil. On very many farms, the spade and hoe are made to do duty for the plow. With small farms and cheap labor, such a method is possible, but it would make France a new country for the farmer, if it was plowed up from end to end like one of our great farms. American tools find little favor with the French farmer as yet. There are a few in use, and they are apparently regarded as curiosities. We once passed a group of fifty people gathered at a roadside in Normandy, to watch the working of an American plow.

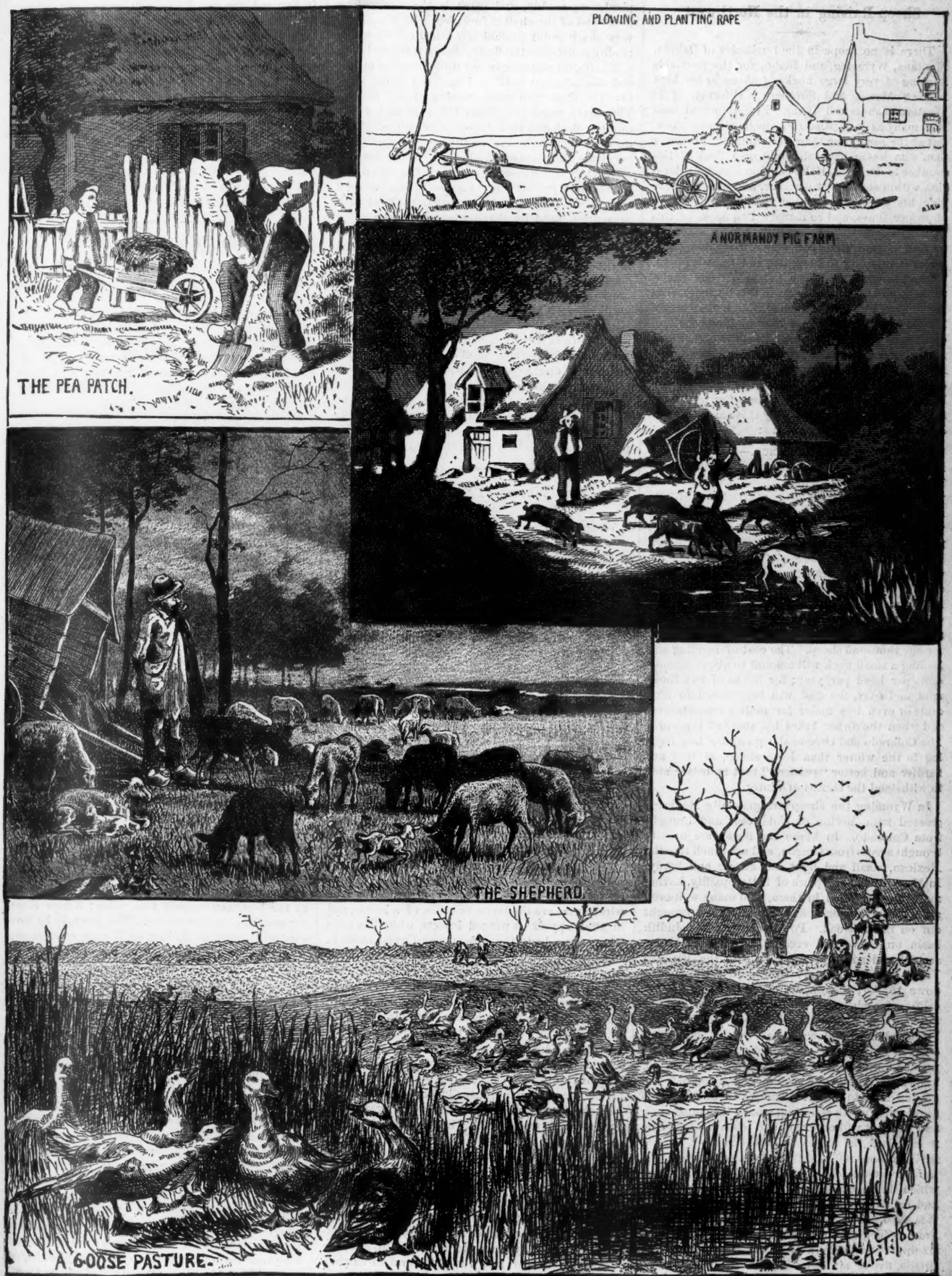
A COMPLAINT TO THE LANDLORD.

French farmers are very litigious. They go to law at the slightest pretext—for a bundle of faggots, or a few bunches of grapes. This has doubtless given existence to the *garde champetre*, a sort of rural policeman, whose duty it is to keep guard over the fields, and watch for tresspassers, and who is constantly called upon to render official service to the farmers. Politically, the farmers form a powerful and important class, and they are canvassed at every election by rival agents from the cities. As a rule, they are conservative. All they want of a government, is for it to give them peace and a good market. Given these, they are satisfied to be ruled as the government chooses.

In France, as in England, the first lessons of childhood are labor. The babies are made scarecrows of, and set to watching the geese; children of larger growth drive the lean swine, which look like dogs in their meagreness, and drudge in the barn-yards and the fields. The writer once had a boy pointed out to him as the brightest lad in a little French village. When asked in what his brightness consisted, the proud parent pointed out a garden patch next to the house, and said: "He raises that, filled every inch, with peas every year."



EVENING ON THE MARNE.—*Drawn and Engraved for the American Agriculturist.*



FARM LIFE IN FRANCE.

Drawn and Engraved for the American Agriculturist.

Sheep Raising in the Northwest.

There is no scope in the territories of Dakota, Montana, Wyoming, and Idaho, for the profitable keeping of very large flocks of sheep as are kept in New Mexico and Southern California, or in Western Kansas and Texas. Five thousand head is as many as it is wise to keep in a single flock, but at the same time there is nothing to prevent a man who has successfully built up a flock of this number to divide it, if he can find a suitable location within convenient distance, and where he can give his personal attention and superintendence at proper times, and so manage two flocks of this size. Experience has proved the wisdom of making a sure thing of one manageable flock, rather than to try to keep two and fail with both. The old proverb "between two stools one comes to the ground," is applicable to this business. The general average of the flocks through this region is from two thousand to six thousand, and the lower limit is far more frequent than the higher one. A thousand sheep is the usual starting point, and is a safe one. To begin with such a flock, a capital of five thousand dollars should be in hand. If one has more, it would be well to loan the remainder at good interest and risk only this amount. The expenditures will be as follows:

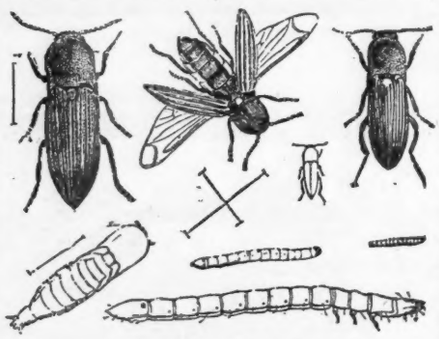
COST OF STARTING A RANCH.—One thousand sheep, at $2, $2,000; twenty pure Merino rams, $500; sheds and buildings, $500; expenses, first year, for two herders and other help, $1,000; horses, wagon, etc., $500; reserve fund $500. The probable income and increase is three thousand five hundred pounds of wool, $700; and seven hundred lambs. The fleeces of the improved lambs will be worth fifty per cent more than those of the ewes, including the increase in weight and the higher market value, and the second year, the wool will at least pay all expenses, as no more labor for herding will be required for two thousand than for one thousand sheep. The cost of bedding and feeding a small flock will amount to about seventy cents per head per year; for flocks of two thousand and over, the cost will be reduced to fifty cents or even less under favorable circumstances, and when the owner takes his share of the work. The Colorado and Oregon sheep require less feeding in the winter than Iowa sheep, as they are hardier and better "rustlers," that is, better able to withstand the storms of winter.

In Wyoming the sheep are generally Mexicans crossed with Merino or Cotswolds and brought from Colorado. In Idaho the flocks are usually brought across from Oregon, and are much like the Mexican, small and light, but strong and hardy. In Montana the sheep are of better quality, having more Merino blood in them, and many well-bred grades from Michigan and Minnesota are brought out on the railroad. Powder River; the Judith basin on Grave-yard creek; the Gallatin Valley around and south of Bozeman, and the Missouri Valley and its tributary valleys past Helena and down to Fort Benton, are especially desirable localities for sheep in Montana. Further west is the mountain region in which good localities may be found in abundance. Last winter, snow first covered the ground about February 1st, and remained until the 20th, when the warm south wind, known as the "chinook," melted it and left the ground bare in a day. The losses of old sheep are scarcely worth counting; among the young ones, two per cent will cover all, and when the best care is exercised, the losses by death may not exceed five in a thousand, and those from accidents. The most frequent losses are caused by a native grass which bears exceedingly sharp awns or beards, and called popularly "needle grass." Botanically it is *Stipa spartea*. The long grain, or seed, of this grass is inclosed in a firm leathery chaff, which, at its upper end, bears a slender twisted "awn," or bristle, five or six inches long. These awns twist and untwist, as the weather is dry or wet, and the plant, on this account, is called "weather grass." These grains, with the long awn at one end, and the hard, sharp point at the other, drop from the plant very readily, and catch in the wool. The lower end of the chaff is furnished with a hard and very sharp point (botanically called *callus*), which readily penetrates the flesh. Being furnished with stiff hairs, all pointing in one direction, this callus, and the attached chaff and included grain, work into the flesh with every motion of the animal. The sharp point penetrates the skin and works into the flesh and even into the intestines. They also are found in the mouth, or if swallowed penetrate the stomach, and cause death. On this account it is necessary to examine the sheep frequently and extract the "needles" from the wool and skin. The remedy, or rather the method of prevention, used by shepherds, is to make a fire break; which is a strip of plowed land around a portion of the pasture, and not permitting the fire to run until June when, the needle grass having started into growth, the fire is started and the dead grass burned off; along with which the young needle grass is killed for that year.

Another frequent trouble through most of this region is from the dust, which is alkaline and irritates the lungs and nasal passages, causing a cough and discharge from the nostrils. This of course is a natural consequence of the character of the soil, and cannot be overcome excepting by avoiding pastures of this kind, or by providing other feed for the flocks at the seasons when the trouble mostly prevails, which is in late fall and winter.

Wire Worms—True and False.

When a correspondent writes that the "wire-worms" are injuring his crops, and asks how he shall prevent them, we are not certain as to what insect he refers. There are several very unlike insects, popularly known as wire-worms. The true wire-worms have but six legs, while the millipedes



CHICK BEETLES AND WIRE WORMS.

or false wire-worms, have very many. The true wire-worms are the larvæ or grubs of a beetle, and in time appear as winged insects, while the false wire-worms have the same general appearance in their larval and perfect state. The perfect insect of the wire-worms is a beetle, of which there are numerous species, varying greatly in size, but of the general form shown in the engraving. When laid upon their backs, these beetles are able, by means of a sudden jerk or spring, to throw themselves up for several inches into the air, and usually alight feet downwards. On account of this peculiarity they are known as snap-beetles, spring-bugs, skip-jacks, etc. They are usually brownish in color, though some are covered with short, gray hairs, and appear ash-colored. The eggs are laid near the roots of a plant, either upon the surface of the ground or just below it, and the young grub feeds upon various small roots, and sometimes enter the stems in search of food. The worms live for a long time in the ground, some of them it is said, as many as five years. As they travel through the soil, feeding upon the young roots, they do much injury. When they have attained their full size, the worms go deeper into the soil, form an earthen case, from which, in a few weeks, the perfect beetle escapes, and makes its way to the surface. As a general thing there is not much to be hoped from direct applications to destroy the wire-worms. In England, the use of soot, salt, guano, and other fertilizers applied for the benefit of the crops, have been thought to diminish the number of wire-worms. In gardens, the worms may be trapped by means of pieces of carrot or potatoes; each piece is fixed to a stick a few inches long, and buried just below the surface of the soil. The sticks, which project above the surface, allow the pieces to be readily found; they are taken up every other day, and the worms killed. Keeping land in fallow is recommended, to starve out the worms, and the burning of all rubbish may destroy some. Probably the greatest help will be from the small birds, which will destroy the beetles in great numbers.

Shade Trees on the Farm.

A few well-formed trees along the fence rows, and even scattered here and there in the open fields, add greatly to the appearance and value of a farm. Cattle, sheep, and other farm animals, suffer greatly from the hot sun when confined in a shadeless pasture in midsummer. They will seek the slight protection from the broiling sun a fence may afford, or stand huddled together for hours, with their heads shaded by each other, in a most unhealthful manner. Animals thus exposed do not give the best returns to their owners, and for this reason, if not for comfort's sake, they should be provided with shade. Some farmers object to trees in the pasture, because their shade is too inviting, and keeps the live-stock from feeding. Farm animals need not graze all the time, and with good pasturage, can get all the grass they need in the cool portions of the day, between which they should have refreshing shade for chewing the cud of contentment. Men are not the only creatures that may be sun-struck; cows unduly exposed to heat, frequently become sick, quickly fall off in milk, and may require weeks of expensive nursing to bring them back to good health. Trees are an obstruction to the cultivation of a field, and occupy the soil for several feet around them, to the exclusion of grain or other crops, and therefore it is best to plant most of the trees along the line of boundary fences. The tired laborer is thankful for a few minutes of shade and rest, and doubtless will do more work by taking an occasional "breathing spell" under a tree. A tree in midfield may be a chestnut or hickory, and make good returns for the space it occupies in nuts, as well as refreshing shade. In many fields there is a low place with a spring or a small running stream, and is well-fitted for a group of trees. In short, any part of a field not suited to cultivation, may profitably grow a few trees, thus affording a retreat for the live-stock from the midday sun, and driving storms. If the pasture has no shade trees, it will pay to provide a temporary shelter. Four strong posts with forks at the top, may support two poles; across these lay smaller poles for rafters. The top may be covered with straw, swale hay, or, if more convenient, brush may be cut and laid upon the skeleton roof.

The Blackberry in Summer.

A blackberry bush, left to itself, becomes a straggling nuisance, catching the clothing, and being in the way generally. The novice should bear in mind that the bush which grows this summer will bear fruit next year, while the bush which has given fruit this season, is of no further use, and is to be cut away. The bush to give fruit next year should be formed this year. The blackberry produces suckers abundantly; only those needed to form bushes for next year's fruiting should be allowed to grow; the rest are to be cut up as if they were weeds. When a bush reaches the hight of four, or at most five feet, stop it; that is, break off its growing end. This will cause side shoots to start along the stem, and when these are eighteen inches long for the lower ones, and a foot long near the top, stop these also, by pinching off the ends. A blackberry thus treated will be a neat, compact bush, and will not only produce finer fruit, than if left to itself, but can be approached without fear of tearing the clothing and scratching the skin.

An $800 Barn.

R. L. HARRISON.

The barn, shown in figures 1 to 7, is placed on sloping ground, thus saving much excavation, and giving an easy entrance to the cellar. This brings the rear door of the granary just high enough for passing out bags of grain, etc., to a wagon. All the feed room for unloading hay, etc. A hay-fork with railway is used, shown at *h*, figure 7. Hay is hoisted through the uncovered space *d*, *e*, *f*, *g*, figure 6, and with the hay-fork is carried back where wanted. The hay can easily be thrown into the feed room. The mow holds thirty to forty tons. The rafters are supported by four by four uprights, placed ten feet apart, and extending from the

The cost may be reduced by using timber less good, especially flooring and upright plank strips, instead of weather boarding or siding, and by using nine-inch brick walls and pillars under the front part where there is no cellar. In this way the cost might be reduced to six hundred or six hundred and fifty dollars. This barn has been in use several years, and has proved itself most convenient and comfortable to both man and beast. Being well made, it has needed no repairs.

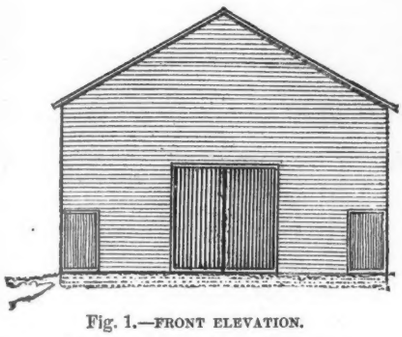


Fig. 1.—FRONT ELEVATION.

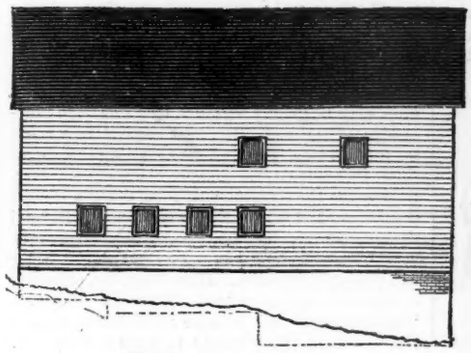


Fig. 2.—SIDE ELEVATION.

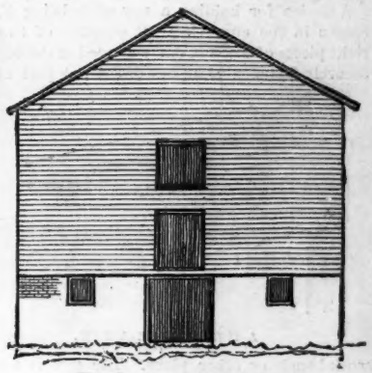


Fig. 3.—REAR ELEVATION.

brick walls are twelve inches thick, except the two parallel walls, which are nine inches. The front wall is built two feet below the sills, and one and one-half foot below the surface of the ground. The cellar walls are seven feet below the sills, and one foot below the surface in the rear. All studs, joists, and rafters, are two feet from centre to centre; the sills are framed together, and the studs are mortised into sills at both top and bottom. The corner and door-posts are four by six inches, and the former well braced with same sized timbers. All floors, except the stable, are dressed tongued and grooved plank; that in the feed room being an lower floor to a cap-board let into the rafters.

Estimates for Barn, 36 ft. by 48 ft., 18 ft. Studs.

6	pieces,	6	by 10	inches,	16	feet long	for sills.....
6	"	6	by 10	"	18	" "	" .....
6	"	4	by 6	"	16	" "	top sills...
4	"	4	by 6	"	18	" "	" ...
10	"	4	by 6	"	18	" "	corner posts and studs.....
8	pieces,	4	by 6	inches,	16	feet long	for braces....
60	"	3	by 4	"	18	" "	studding..
50	"	3	by 4	"	16	" "	" ...
10	"	4	by 4	"	24	" "	uprights and support rafters.....
50	pieces,	3	by 4	inches,	22	feet long	for rafters ....
17	"	2½	by 10	"	18	" "	joists over cellar.....
14	pieces,	2½	by 10	inches,	12	feet long	for joists under feed room.....
72	pieces,	2½	by 8	inches,	12	feet long	for joists.....
4	"	2½	by 8	"	36	" "	tie beams..

Hungarian for Hay or Green Fodder.

A quick-growing plant is required for a second crop sown on land after oats, or early potatoes have been harvested. Hungarian grass is excellent for this purpose, and with a rich and mellow soil will be ready to cut in mid-summer, or soon after. If the conditions are most favorable, a heavy crop may be obtained in six weeks from sowing. Pre-

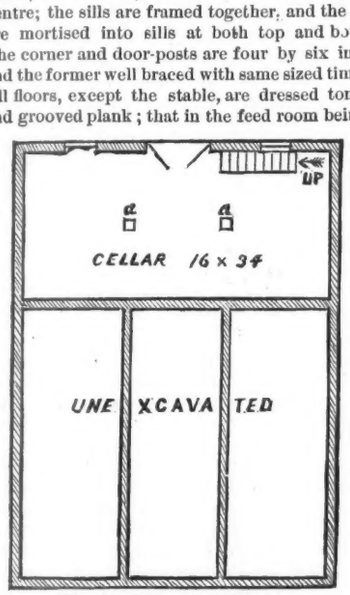


Fig. 4.—PLAN OF CELLAR.

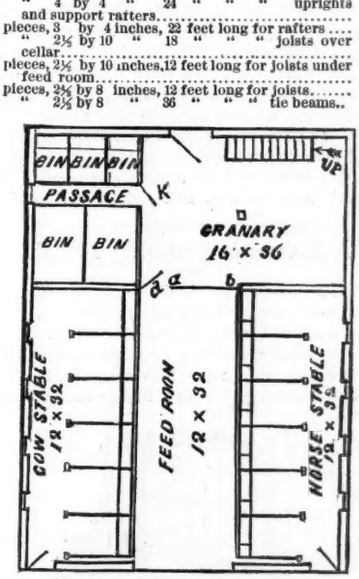


Fig. 5.—PLAN OF FIRST STORY.

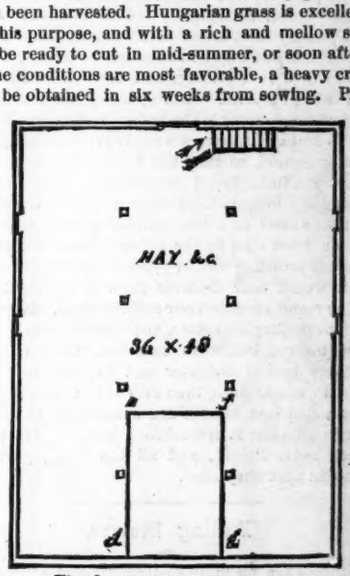


Fig. 6.—PLAN OF SECOND STORY.

inch and a quarter thick, and the balance seven-eighths inch thick. The latter is also used for all doors and windows. In figure 1, the centre doors are hung at the top with iron rollers and rails, sliding back on the inside. At *a*, *a*, figure 4, are foundations for pillars, used to support the floor above. The small door *d*, in figure 5, is used for ordinary passage from feed room to the granary, but the whole partition in rear of feed room, *a*, *b*, is hung on hinges (see figure 7, *s*, *s*,), and when necessary may be hooked up to the joists above. This is very convenient in threshing, the straw passing out at the rear door. The feed room is used for threshing, being wide enough for a two-horse tread-power and separator, or a sweep-power or engine may be placed in the front yard. The room at the side of the granary, containing bins, is ceiled on all sides with wide, dressed, tongued and grooved plank, and all corners protected with twelve inch strips of tin. This, with a close-fitting, self-closing door at *k*, makes a rat and mouse-proof place for storing grain, etc. The bins hold about one thousand bushels. The stables have slightly sloping floors of two-inch plank. Wagons drive into

Total, 8000 ft. framing, @ $15.	$120.00
4000 feet 7 inch weather boards, @ $15.	60.00
4000 " tongued and grooved dressed flooring @ $22...	88.00
2000 " 1 inch boards for shelving, @ $12.50.	25.00
1000 " 1 " " (good) for stalls, troughs, &c., @ $15.	15.00
2000 feet 2 inch boards for stable doors, @ $12.50.	25.00
7000 " 6 " wide cypress shingles, @ $10.	70.00

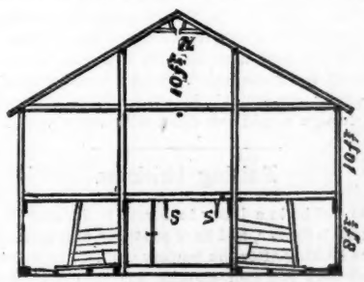


Fig. 7.—SECTIONAL VIEW OF BARN.

Excavation for cellar and walls.	20.00
23,000 bricks laid, @ $10.	230.00
Carpenter's work.	125.00
Locks, hinges, nails, tin, &c., say.	22.00
Total cost.	$800.00

pare the soil as for oats, wheat, or other grains, and sow one bushel of seed per acre. It may be sown broadcast and harrowed in lightly. The Hungarian fodder has obtained a bad reputation in some localities, without deserving it, simply because the cutting was delayed too long. The crop should be harvested as soon as the head is well formed, and before the barbed awns become hard and dry. The fully ripened bristles irritate the stomachs and intestines of animals, especially those of horses, and have sometimes done injury.

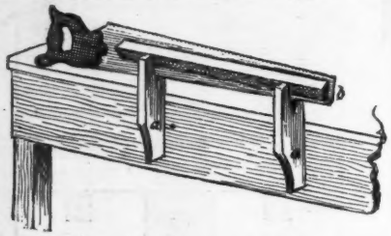
If the crop is grown to help fill the hay-mow, it should be cut and cured in the same manner as Timothy or Red Top, when it makes a good hay. Hungarian grass is especially recommended as a late crop to be fed green, when the pastures are short and dry from close feeding and summer drouth. For this purpose it may be sown in strips weekly, from early June to the middle of July. By growing a few acres of this late crop after an early one, a farmer is able to carry an increased number of farm animals and keep them in good order. Bear in mind, that the conditions of success are a rich, deep, and mellow earth, and on

well worn soil this means a plenty of quick-acting manure, applied before the grass seed is sown.

There are various sorts of Millets, which are closely related to the Hungarian, and like it are good for a second crop for green or dry fodder.

A Saw Holder.

A device for holding a saw while being filed is shown in the engraving. It consists of two upright pieces of wood *a*, cut V-shaped at the top and securely fastened to an out-of-the-way part of the



A HOLDER FOR A SAW.

work-bench or other place. The saw is set between two long wedges *b*, which are pushed down and firmly hold the saw. A saw cannot be well filed unless it is secured from movements of all kinds, and this simple method will accomplish the desired end at very little expense.

Summer Poultry Roosts.

The presence of a pair of fine cedar trees in our poultry yard, accidentally led us into the belief that poultry fares much better if allowed to roost out of doors at night in summer, instead of being confined in hot, stifling, and often ill-ventilated, and filthy houses. Our poultry manifested a disposition to roost in the cedars in summer. Some of the limbs of the trees were low, drooping nearly to the ground, so that the fowls, even large and heavy Brahmas, found no difficulty in getting up among the branches. They were out of the reach of the weasel and fox, and being so completely hidden from view by the foliage, it was not likely that any prowling owl, or passing biped inclined on theft would ever discover them in the seclusion.

The result exceeded our anticipations. Not only did our poultry lay better, and more regularly than ever before, but were healthier, their coat of feathers looked brighter and livelier, and they kept in better flesh than ever before at the same season. Close houses are a necessity in winter, but in summer it is doubtless best to give fowls much more liberty, and all the fresh, pure air at night that they need.

Pulling Stumps.

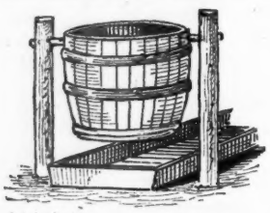
Stumps are far more easily extracted after soaking rains have left the ground loose and yielding, than after the packing and baking of a season of drouth. For small stumps, especially on ground too wet and soft to admit the use of teams, a simple and effective arrangement may be used. A strong axle, say six inches square, is fitted to any stout pair of wheels, as those of a truck, to which a triangular lever is firmly bolted. It projects sixteen inches behind and sixteen feet in front, and is made of tough hard-wood, the pieces six inches square. To the end piece, which is mortised and securely bolted to the others, a chain with two stout hasps is attached. In using it, a broad plank is placed under each wheel to prevent sinking into the earth, and the wheels are blocked. The hooks are grappled into a root, and when raised as far as possible by depressing the lever it is blocked and a new hitch taken lower down. Two men can move the implement from stump to stump. The leverage would be nearly twelve to one, giving three thousand six hundred pounds power if the men weighed one hundred and fifty pounds each, and could both put their weight upon the extreme end of the lever—a power that would start small stumps.

The Turnip Crop.

Ruta Bagas are the most valuable of all turnips, and though we have known a good crop to be made not far from New York City, from seed sown as late as the middle of this month, it is better to sow in June. If from any cause one has omitted sowing turnips until now, he can either risk a late sowing of Ruta Bagas, or sow those which, like the Aberdeen, will mature in a shorter time. As the chances, in a good season, are in favor of making a fair crop of Ruta Bagas, if sown early this month, it will be good management to sow both these and the intermediate kinds, like the Aberdeen. The crop may be greatly hastened by a thorough preparation of the soil. The best cultivators sow on manured ridges. The land is thrown up into ridges thirty inches apart, the manure, the finer the better, is placed in the furrows, and then, using a double mould-board plow, the ridges are split and the soil thrown upon the manure, making new ridges over it. The seed is drilled in upon these ridges, using two pounds to the acre. If the black-fly, or beetle, is abundant, use more seed. When the plants are "in the rough," that is, have made leaves beyond the seed-leaves, they should be hoed and thinned. The usual method is to cut across the rows with a sharp hoe, leaving a bunch of plants at every ten or twelve inches, and then go over again and remove all but the strongest plant. After the thinning, the spaces between the rows must be kept clear of weeds by the use of the cultivator, aided by the hand-hoe near the plants. The varieties of Ruta Baga are numerous, and other things being equal, those the form of which is most nearly globular are to be preferred. Those who grow turnips largely, raise their own seed, and thus secure a strain suited to their land. The Aberdeen and Yellowstone may be sown any time up to August 1st; they are excellent for feeding and for the table, but do not keep so well as the Ruta Bagas. In preparing the land for turnips, a dressing of three hundred pounds to the acre of a good superphosphate, will be a profitable application. The soil must be rich and mellow for turnips.

A Reversible Watering Trough.

Mr. I. E. Charles, Maple Grove, Ind., sends us a sketch and description of a watering trough. Saw in two a strong barrel or cask, as a coal oil barrel, about the middle, and bore a hole on opposite sides near the top with a two-inch auger. Set two posts of scantling or round timber in the earth,



TUB WATERING TROUGH.

boring holes in the top to correspond with those in the half barrel. Strong wooden pins, oak or hickory, support the trough, as shown in the engraving. The trough can be inverted to throw out any water after a horse or cow has drank. It may be set near a pump with a trench below to carry off the waste water. Such a barrel trough is especially convenient in winter when otherwise the trough would get filled with snow and ice.

Raising Chickens.

Do not be in a hurry to invest in incubators, if you are a farmer, and have anything else to do besides looking after the poultry yard. The wooden incubators are well enough for men who have plenty of money, and make the raising of eggs and chickens a specialty. A good many things about incubators are not yet proved, and a farmer who has his bread to earn, can afford to wait a little longer, and use the original method for hatching and raising chickens. The hen is good for a dozen eggs, and, if she be left to her own selection of nest, is pretty sure to hatch them, if they are fertilized. You may protect her against vermin, but she covets privacy, and desires to be left alone. When her brood is off, she needs a little help, a coop for shelter, and regular feeding with a mixed diet of animal and vegetable food, and water or milk to drink—the latter if you can get it. Nothing is better than milk for the fowls. The young chicks will help, rather than hinder in the garden, until they are a month or six weeks old. They will destroy a multitude of insects, and thrive on them. The early hatched chickens are best for layers, but late summer is quite as good for broilers. They never come amiss at any time on the farm.

Among the Farmers.—NEW SERIES, No. 3.

BY ONE OF THEM.

I was in Central Vermont last spring, and noticed many fields where Indian corn would soon be waving its broad leaves, upon which the manure had been hauled out last autumn, and left in small heaps. At first I thought that the intention of the farmers must have been to spread it and plow it under at once, and so it may have been, when winter came on, and stopped all such work. But there were so many fields in this condition, that I concluded it was a common practice to leave the manure out all winter, and plow it in in the spring. It would not do at all in New Jersey, and is wasteful anywhere. When frozen solid there is not much loss, and lying unprotected a little while in autumn, and six weeks in the spring, the loss is not very serious, but it certainly is better to have it spread uniformly over the ground, where it will not wash, or to place it in large heaps where it will go on ripening for most of the winter, even if it should be under the snow, and the outside temperature be twenty below zero. No doubt the reason for this practice of getting out manure in the fall, is because the winters are so long, and the northern farmers cannot haul out on the snow as we can. They have two to four feet of snow, and this, of course, confines travel to the beaten paths. With a foot of snow, settled to four inches by a rain or a few warm days, and then frozen solid, we can haul manure anywhere, and do many other things.

Manure Spreaders.

With one Vermont farmer the necessity for getting ready for early plowing, no doubt suggested the admirable manure spreader now in universal use among the gentlemen farmers (of whom I wrote in my last article), and by some other enterprising and reading men. It is amazing how slow such a great labor-saving, and time-saving, implement is in coming into general use by those who would be most benefited by it. I presume there are hundreds of readers of the *American Agriculturist*, who have never even heard of it. This manure spreader consists of a cart body, which may be set at an inclination to the rear, where there is a very simple arrangement in the place of the back-board, operated by the wheels automatically. This implement spreads the manure over a space as wide as the cart track, or a little wider, and much more uniformly than it could be done by hand, and as rapidly as the team can walk. Two or three neighbors, each owning a manure spreader, sometimes combine, and all meet at one farm, and so manure the corn land in one day perhaps. Thus the man whose land is ready first does not have to wait long before his plows are running, while, quite likely, the others will have the same advantage, as soon as their land is dry enough to plow.

House and Barn Connected.

I had entirely forgotten a noticeable feature of Vermont farming—for it is years since I was in the Green Mountain State. It is this: Almost all the barns are built contiguous to the houses; in many cases the barn is really an "L" to the house. It was easy to see the reason for this, or at least imagine it. I thought of a snow storm among these hills, and of the comfort it must be, when the snow is

piled up as high as the tops of the windows, and there is no getting about, for the farmer to be able to care for his cattle, and do his milking and "chores" without digging through an eighth of a mile or less of drifted snow, or tunneling through a drift before he could even get sight of his barn. In this part of the country I am sure we put our houses and barns too far apart for convenience in winter, and yet they are safer in case of fire. Besides, our house wells are quite near enough to the barnyards. Up there among the hills, the water comes down in wooden pipes from some mountain spring, so the nearness to the barnyard is not of so much consequence.

Pure Drinking Water.

This matter of pure water to drink, is vital, *vital*, VITAL to the well-being of farmers. It may be all very well for the good of the race, for the puny, delicate, "peaked" children to die, but these are the ones that the mothers, at least, love best, and there is a vast deal of rending of hearts over the sickness and death of the delicate ones, young or old, which might at least be postponed for many years, if they and we had pure water to drink. Wells near barnyards, or within two or three hundred feet of them, sometimes contain the germs of disease and death. The old fashioned privy vault, fifty times more dangerous, is usually nearer the house and the well, and contrived, as if by the "arch-enemy," as an unfailing source of malarial poison, of diphtheria, typhus and typhoid fevers, and the evils that follow in their train. There ought to be State laws forbidding the existence of the privy vaults, or even of cess-pools, except, perhaps, cemented cisterns, through which a regular flow of water is maintained.

No system was ever devised equal to the Mosaic, (Deut. xxiii ; 12, 13 and 14,) but that is particularly adapted to a nomadic people, although I have met with it in Louisiana and Kentucky, and know it is the rule in Texas, where the abomination alluded to has never existed, except to a very limited degree.

Milch Cows.

There has been a good deal of discussion lately in some newspapers, as to whether it is best to raise or to buy milch cows. This is a question like many others, "with two sides to it." When "once upon a time," some one said that everything had two sides, his opponent thought he gave him a "poser" when he asked "on which side of a pitcher is the handle?" It did not take long to find out that it was on the outside, and so in this matter of raising cows, there is an inside and an outside. In Cattaraugus, and other New York counties, the farmers long ago were wise enough to procure full-blooded Shorthorn bulls, and these have given rise to a style of cows which is very prevalent there, and is just what our milk producers want. They can be raised there for about twenty dollars a head, cost the buyer thirty dollars, and so the raiser has a fair profit. No more is asked for a four or five-year-old cow, which has given two calves, and probably four thousand quarts of milk. The raiser can well afford to sell rather than winter some of his cows, and where milk is worth an average of three cents a quart the year round, farmers can not afford to raise calves dropped at any time before the middle of May. Calves may indeed be raised without milk, but they are not the ones that make the best cows, and if raised upon milk, they will cost the farmer, to say the least, a great deal more than anybody will give him for them. The danger of importing disease is very slight. I would never advise a man to buy cows out of a travelling herd, but there are in every dairy section, enterprising men, usually first class farmers, who go into the cow-raising counties, and buy four and five-year-old "springers" (cows soon due to calve). They buy of men whom they know, pick up two or three car-loads, and arrange to have them shipped, one car-load at a time, as ordered. Often these dealers know the cows, and have watched them as they grew, as two, three, and four-year-olds. They are healthy, large milkers, and seldom go wrong, and are sold at prices decidedly lower than the milk-producer could have raised them for himself.

If a milk-farmer has a grand twenty or thirty-quart cow, and wants to raise her heifer calf, and get one to be really proud of, let him send her to a first rate Jersey or Guernsey bull, so that she will come in in May. Then arrange to raise the calf on skim milk, and to do well by it, and he will probably get a cow giving sixteen to twenty quarts of very rich milk. The drifting herds I speak of, are usually picked up by an inferior class of dealers, in places not far removed from the milk section. They attend auction sales, and get any kind of "springers," and cows with young calves, they can buy. They move slowly through the milk region, towards the cities, where they are sure of some sort of a market, and they constantly trade and barter along the route. Of course there is great danger of getting disease in one's herd in buying such cows, and it is a blessing that these drifting herds generally head east, where they soon become beef, and that now-a-days there are comparatively few of them.

Keeping Hams through the Summer.

It is somewhat difficult to guard hams from flies through the summer, however well cured and smoked. The smoke-house, if well made, preserves them, and this is the more common place of deposit with those who smoke their own hams. But multitudes have on hand a season's supply of hams and shoulders. They keep much better in a dry atmosphere. If sugar-cured hams are purchased, the cloth that covers them is a sufficient protection against insects. If the hams are home-cured, they can be covered with cloth at small expense, or even with a bag of thick paper tied tight at the top, around the string by which they are suspended. If hung in a dry, cool place, they will not mould, and will always be on hand for the staple of a hearty meal, in any emergency of the family. Farmers generally make their own meat, and cure it, and, with a good recipe for curing, secure better hams than they can purchase, and at less cost. It pays to keep the larder well stocked with the best.

Preparing Sumach for Market.

Certain inquiries seem to be perennial; a crop of them coming each year with the return of summer, probably from new subscribers who have not seen former volumes. Sumach is one of these perennial subjects. The first inquiry this season came from W. P. Gould, Clay Co., W. Va., and in answering him, we reply to several others. The two species most commonly gathered, are the Smooth, or Common Sumach (*Rhus glabra*), and the Staghorn Sumach (*R. typhina*). The Mountain Sumach (*R. copallina*) is equally valuable. The first two are found nearly all over the older States, while the other is somewhat less common. The tops of the bushes and ends of the branches are broken off and laid upon roofs, on hard bare places upon the ground, under sheds, etc., where they remain until dry. It is then threshed with sticks, the twigs and stalks picked out, and the leaves packed in sacks, bed-clothing, or whatever will hold them on their journey to the mill. Herein is the difficulty in sumach collecting. The article is not marketable until the leaves have been ground fine and bolted. The machinery or plant required to do this, costs more than a collector of the leaves can afford, hence the business, to be profitable, requires a mill, and within easy reach of numerous collectors, as the crude leaves are too bulky to warrant packing and shipping to a distant mill. The business of preparing sumach for market, is mainly confined to Richmond, and some other cities of Virginia. The collectors take their small lots to the mills, where they are bought. After the sumach is properly manufactured, it is sent for sale to New York and other cities, where it comes in competition with the imported, or Sicilian Sumach, which is the leaves of *Rhus coriaria*, a species cultivated in southern Europe. However abundantly sumach may grow in a locality, unless the owner of some grist mill will introduce machinery to grind and bolt the leaves, or some capitalist will establish a mill for the purpose, the gathering of the sumach crop can not be made profitable.

Propagation of Trees by Layering.

A. S. FULLER.

Layers are really nothing more than a form of cutting, the only difference being that they are allowed to adhere or remain attached to the parent stock—drawing sustenance therefrom until roots are emitted, after which they are detached and become individual plants. In making layers of trees or shrubs, we bend down a branch, and cover that portion with earth upon which we wish to produce roots. Figure 1 shows a layered branch buried

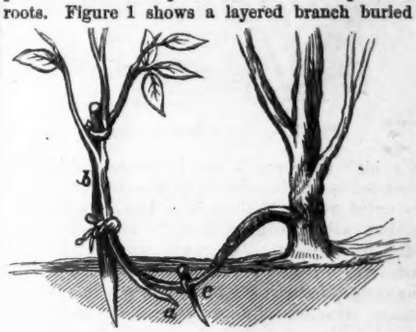


Fig. 1.—A LAYERED BRANCH.

in the soil. An incision is usually made on the under side of the branch before it is laid down, and the knife inserted just below a bud if there is one convenient, passing into the wood, and then an inch or more lengthwise of the branch, forming what is termed a tongue, as at *a*. A hooked peg, *c*, may be employed to hold the layer in place, or a stone laid on it, as it is quite important that the branch be held firmly in place. If the branch is large, the end may be tied up to a stake, as shown at *b*. It is not often that forest trees, except some ornamental varieties, are propagated in this way, but it is well enough to know how to do it, when necessary to increase the stock of some choice or rare specimen. Layers may be made at almost any season, but they will root sooner if made when the trees are growing rapidly, than at any other time.

Some kinds of trees will produce roots when layered without cutting the branch, and exposing the alburnum—in fact, all will, in time, but the surest way is to cut the branch as described. With some kinds, roots will be emitted so slowly that the layer must remain at least two seasons before it will be safe to sever it from the parent stock. Evergreens may be layered in the same way as deciduous trees, but the operation should always be performed during the period of active growth, else the wound made on the layer is likely to be covered with resin, which may prevent the emission of roots.

Fig. 2.—POT LAYERING.

Sometimes a part of a tree or a small branch will vary from the original; when this occurs on a large tree and where the branch cannot be made to reach the ground, we are compelled to elevate the soil, or some similar material to the part we wish to propagate, unless it is some species which can be readily propagated from cuttings, buds, or grafting. If we desire to obtain a layer, we have only to place a pot or box of soil near the branch, so that it can be covered with earth, the same as if near the ground. After the branch is layered, the soil surrounding it must be kept moist until roots are produced. Figure 2 shows a branch layered in a pot from which a piece has been taken from one side to admit the branch; the crevice is closed with a piece of board or shingle placed on the inside of the pot, after which the pot is filled with soil. If the pot is surrounded with cloth or moss, it will in a measure prevent the earth from drying, and therefore less frequent waterings will be required.

Various Garden Structures.

The beauty as well as the enjoyment of a garden may be greatly enhanced by the introduction of structures, the utility of which is apparent. If there

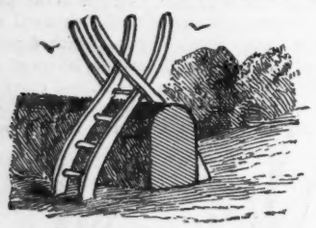


Fig. 1.—A STILE FOR HEDGES.

is a high eminence, it may be appropriately surmounted by an observatory, to allow of a still more extended view. If there is a lake or a stream, bridges will be suggested, and a boat-house may often be desirable. If there are ornamental fences, gates with ornaments are required, or if the grounds are divided by hedges, stiles will be needed. While garden structures are, as a rule, made in winter, summer, the time when the garden is most frequented, is the proper season for selecting the localities for them, and the best for judging what their effect will be. Summer is also a good time in which to select the material, though it may not be made up until winter. The several designs here given are those suggested by Mr. Elias A. Long, a landscape gardener of Buffalo, N. Y.

STILES.—Ornamental hedges are much more generally used than formerly, and in some localities they largely serve the purpose of boundary fences. One of the objections to a hedge is the difficulty in crossing it. A gate in a hedge seems out of place, and the stiles are usually cumbrous structures. There is no reason why a stile should not be as portable as a step-ladder, to be used wherever it is needed. Figure 1 shows how a stile of this kind may be built. The two parts, where they cross, are held together by bolts, or a single long bolt may be used; the curved form of the sides allows it to be employed without resting on and injuring the hedge.

BRIDGES.—Whoever has a stream, however small, running through his grounds can produce a variety of ornamental features. It may be improved as a stream, it may often be made to form a small lake, or its current may be dammed to produce pleasing cascades. A stream will often require the introduction of a bridge, or, in some cases, a bridge may cross a dry ravine. A bridge should be abundantly strong in its roadway, and the railings, while they may be ornamental, should always convey the idea of sufficient strength. Rustic bridges are very pleasing, and the design given in figure 2, is easily executed by the use of the branches of Red Cedar. In some places a bridge may be constructed of rocks, and be in better keeping with the surroundings than a more elaborate structure would be. Figure 3 will afford a suggestion for building bridges of this kind. Rustic and rock bridges may be made still more picturesque by trailing the Virginia Creeper, and other hardy climbers upon them.

SUMMER HOUSES.—Some fifty years ago it was thought necessary for every garden, large or small, to have a summer-house. These were cumbrous structures of timber and boards, with shingled roofs, and usually painted white, with green blinds. They were rarely used, but given over to cobwebs and dust, and generally became convenient tool-houses for the garden. A rustic summer-house may often be introduced as a picturesque object in the grounds, and may be a pleasing resort for reading, sewing, etc., in hot weather. A summer-house may often fitly crown a high portion of the grounds, wherever an extended view may be had, or an abrupt promontory on a lake. Figure 4, gives a pleasing design for a rustic summer-house of a hexagonal form. It is built of Red Cedar, with three sides closed and three open. The interior is finished in small, straight branches of cedar, nailed on obliquely. The exterior of the closed sides, and the two half open sides, are finished in pieces of cedar poles, about three inches in diameter, and split in halves; these are nailed on as shown in the engraving. The roof is thatched with straw, laid on from nine to twelve inches thick; this serves to keep the interior cool, and accords with the rustic style.

Fig. 2.—A RUSTIC BRIDGE.

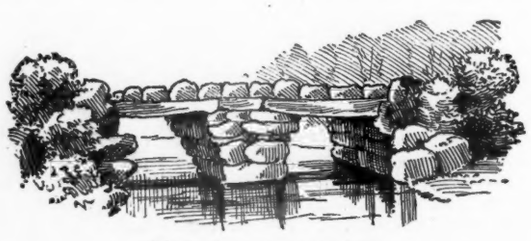


Fig. 3.—A BRIDGE OF ROCKS.

The Importance of a Supply of Wood.

No one who is at all familiar with forests and their products, needs to be reminded of the importance of having at hand an abundance of wood of various kinds, or how much it contributes to the general welfare and happiness of a nation. But there are those who have not paid much attention to this subject, who claim, and no doubt honestly believe, that the great progress made of late years in the use of iron in the place of wood in building houses, bridges, piers, ships, and other structures, are but indications of what is to follow, and that in a few years there will be no great demand for wood.

The building of railroads, which reach almost every part of the country, has aided in the distribution of coal, and made this in a great measure a more convenient, and in many instances a cheaper fuel than wood, but in building these roads a vast quantity of wood has been used, and of the best kinds, not only for ties, of which nearly or quite three thousand are put down per mile, but on many of the roads wood is still used for fuel. There is now nearly or quite one hundred thousand miles of railroads in the United States, and we have only to multiply this by three thousand, to ascertain that three hundred millions of ties have been used in their construction, leaving out of account the thousands of wooden bridges and other structures, in the building of which more or less wood has been consumed. The railroads may have assisted very materially in checking the consumption of wood for fuel, but they have probably more than balanced the account in the amount used in their construction, besides the three hundred million of ties must be duplicated every ten years, for the average life of a railroad tie will scarcely exceed a decade, and with nearly all kinds, except the best oak, it is a year or two less.

The demand for railroad ties is not likely to decrease, but increase, although as timber becomes scarce and prices advance, preserving processes will doubtless be employed to prevent rapid decay. Stone, brick, and iron will also come into more general use for buildings, but the increase in population will also tend to increase the demand for wood for other purposes besides that of buildings.

It is only a little more than a century since coke was first employed for smelting iron ores. The introduction of this fuel to take the place of charcoal, it was thought would save the forests of the world from destruction by the charcoal burners, and while it has done much towards making it possible to produce sufficient iron to meet the great and constantly increasing demand, it has not superseded charcoal, and there is probably more charcoal used to-day than at the time coke was first employed in a smelting furnace. Charcoal is still used in furnaces and forges, and there are several establishments in this country that use annually over a million bushels each, and a score of others that consume from twenty to twenty-five hundred thousand bushels.

Notwithstanding the number of substitutes that are employed, the demand for and consumption of wood appears to increase, and to-day there is probably more wood used for making boxes of various kinds than there was in the construction of buildings of all kinds in the country three-quarters of a century ago. Furthermore, no kind or quality of timber appears to escape the insatiate demand of the artisan of the period, and he not only finds ready uses for the large and small, the hardest, toughest, and most durable, but also for the soft and spongy, the latter being preferred for grinding up into wood-pulp for making paper.

Not a year passes during which scores of new devices and inventions of new articles of manufac-

Fig. 4.—A RUSTIC SUMMER-HOUSE.

ture, are not brought forward, that are made in part or wholly of wood, and while singly they may not call for a great quantity, they do in the aggregate use up an enormous amount of the material.

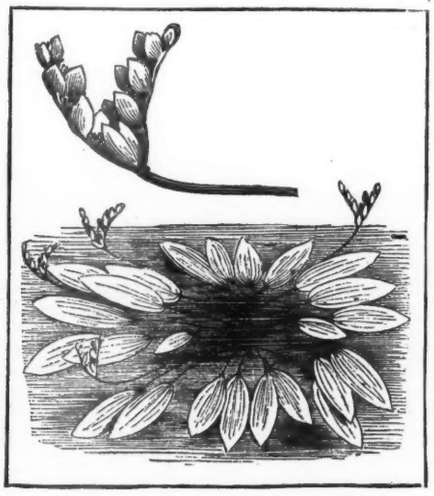
The invention of a pleasing toy for children has frequently caused the demolishing of hundreds of acres of forests, to supply the manufacture with wood used in its construction. It is idle to talk of our natural forests furnishing a supply of wood for the future use of our people, even with the most careful management and economy in preventing waste, there must soon come a time of great scarcity of all kinds of wood. With an increase in population, there must necessarily follow a corresponding increased demand, because experience has shown, that whenever any other material has been substituted for wood, it merely releases a certain amount, and allows it to seek other channels or markets. No matter in what direction we turn, the fact meets

us, that the best and most valuable forests of the United States are rapidly disappearing, and the sooner we commence as a nation to economize in the use of wood of all kinds, and preserve the forests now existing, as well as commence the planting of new ones, the better it will be for the present as well as future generation.

It is not necessary to select the best and most fertile land upon which to raise trees, for any that is rich enough to give the plants a good start in life will answer, because the annual dressing of leaves that the soil receives will be sufficient to keep the trees growing. There are doubtless many situations, where a single tree would not thrive, as on a prairie, a bleak hillside, or other exposed positions, where by planting a number together, they would mutually protect each other, and usually take care of themselves. We have millions of acres of barren, naked, sandy, rocky, and otherwise unproductive lands, that might readily be covered with valuable forests. Large plantations of forest trees have been established in Europe, and there is no good reason why the same should not be done in America. Let us do it now. A. S. F.

The Water Uintjies.

Those who have upon their grounds a small body of water, no matter how small, provided it does not dry up in summer, can enjoy a number of beautiful and interesting plants, which can only be grown as aquatics. A collection of the Water Lilies, which, besides our own, with its rich fragrance and dazzling whiteness, together with its fine pink variety, would include exotic red, blue and other species. Besides the water lilies, there are a number of less conspicuous plants, none of which are more desirable than the Water Uintjies. We have not been able to find out what "Uintjies" means, but it is said to be a term applied at the Cape of Good Hope to the plant known to the botanists as *Aponogeton distachyon*, an aquatic plant related to our native Arrowhead, so common in swamps. *Aponogeton* is said to be a mongrel name, between Celtic and Greek, and to mean "near water," which is not very descriptive of this plant, which is a thorough aquatic. From a tuber about the size of a hen's egg, there arise numerous leaves, upon long, slender leaf-stalks. The leaves float, are from a foot to eighteen inches long, of the shape shown in the engraving, and of a clear green color. The flower stalks arise among the leaves, are divided at the top to form two branches, upon the surface of which are placed the flowers. These have neither calyx nor corolla; they consist of obtuse, ivory-white

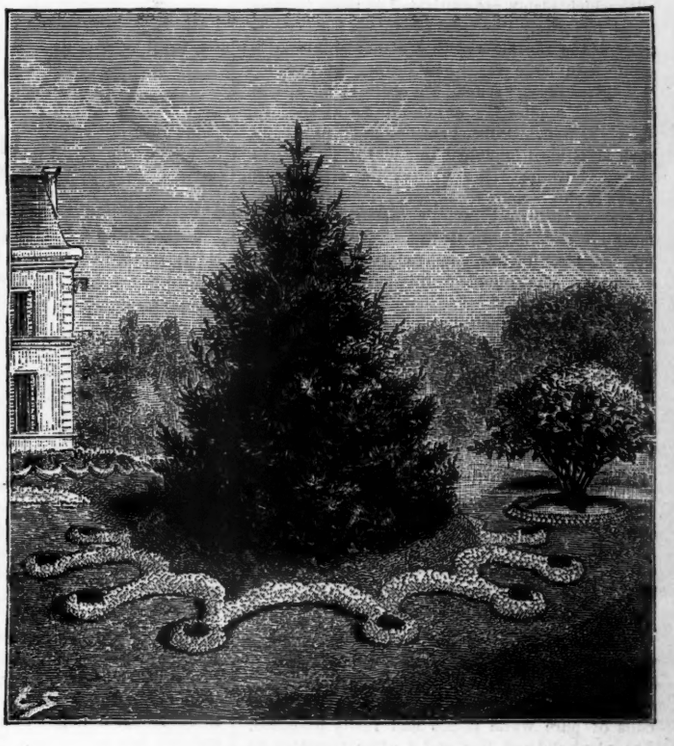


THE WATER UINTJIES (*Aponogeton distachyon*).

bracts, in the axils of each of which are twelve stamens, with dark-purple anthers, and four to six pistils. The plant is odd in its general appearance, but is noted for its abundant and most exquisite fragrance. It flowers continuously all summer. Though it comes from the Cape, it is hardy in New England, and would probably be so in all but the very severe portions of our country. It is said that the flower-stalks and tubers are eaten in Africa.

Isolated Trees with Decorative Surroundings.

Much of the French decorative planting is too elaborate to be successfully copied in our climate. They have, however, a method of surrounding isolated trees upon a lawn, which may sometimes be adopted by us with good effect. Mr. Edward André, one of the most judicious French garden designers, in communicating the illustration to the "Revue Horticole," which we here reproduce, says that this is a kind of ornamentation that may easily be overdone, and advises great moderation in its employment. It is best suited to young specimen conifers, furnished with branches quite to the ground, such as a well-grown spruce, a Lawson's cypress, etc. Gay flowers would be out of place, the object being to make use of colors that will make a striking contrast with the lawn. In the example illustrated, a circular bed of some dark colored Coleus was planted next to the tree, and extending quite up to it. This was surrounded by a many-pointed star with rounded angles planted with "Dusty Miller" (*Cineraria maritima*), kept low by severe cutting. At the points, or where the adjoining arcs unite, small circles are formed in the middle of each of which are plants of *Iresine acuminata*. We give this design as a suggestion, and one capable of being varied in many ways. Ivy, pegged down, and the Golden-netted Japanese Honeysuckle, the charming *Retinispora plumosa aurea*, which may be kept at a hight of a few inches might be planted. Ivy with Dusty Miller makes a fine contrast. Indeed one who wishes to attempt this kind of ornamentation will find an abundance of materials suited to the purpose.



A TREE SURROUNDED BY A BORDER.

Grapes Here and There—The Ives.

Some twenty years ago the Concord was advertised far and wide as "The Grape for the Million." It was indeed successful over a wide extent of country, and did much to popularize grape culture, as it would yield grapes under neglect. But after a while localities were discovered in which even the Concord would rot, and was worthless. It was generally successful—with exceptions. Then came the Ives grape, an Ohio seedling, probably of the Hartford Prolific, for which was claimed all the good qualities of the Concord, and a superiority to that variety as a wine grape. Some eighteen years ago we visited the first vineyard of the Ives, ever planted, and more healthy, fruitful, vines were never seen. As to quality, not much can be said; there are some poorer grapes, and many better, but it seemed that one who had a vine of the Ives, would have an abundance of grapes, and his success with this indifferent kind would lead to a trial of better varieties. Wishing to know more about the Ives, we planted six vines of this variety in our experimental vineyard. When these came into bearing, they bore abundantly, but failed to ripen. The berries, when full-grown, cracked open, rotted, and did everything that a grape ought not to do. After this had been repeated year after year, the number of vines of the Ives was reduced to two. Several years ago, Mr. Geo. A. Meissner, one of our most intelligent viticulturists, called on us; in a general talk upon grapes, we gave him our experience with the Ives. This so astonished him, that we brought him specimens of the fruit, that at that time should be just ripening. After keeping two vines of the Ives for several years, the number was reduced to one, which is continued as an instructive specimen. Some weeks ago, in writing Mr. Meissner, among other grape gossip, we mentioned, in reference to a former conversation, that our remaining vine of the Ives, in a vineyard of over fifty varieties, had never given us a single perfect berry. In reply, Mr. M. wrote the following, which, though in a private letter, is so full of good sense, that we venture to publish it. He says: "What you say with reference to Ives and Elvira with you, proves again that we must not expect any variety to do well in all different sections. The Ives is, here, Jefferson Co., Mo., and especially in the country south and southeast of here, one of the most reliable and surest grapes, though its quality is always inferior, compared with the finer and better varieties. The Elvira, on the other hand, is rapidly growing in favor, especially in the lake regions of Ohio, on the islands in Lake Erie, etc., where it is now being planted very extensively." Here follow these words of wisdom from a grape-grower of the widest experience, which we commend to those who are searching for "the grape for the million." Mr. Meissner continues: "Thus every section will have varieties which are specially adapted to its locality, soil and climate. But in this very question of adaptability of the varieties, there is yet a great deal to be learned. Experience is the best teacher in this matter." Let us hear no more about "the grape for the million," but let each cultivator endeavor to ascertain which varieties of grapes are best for his locality and soil. With the grape, as with other fruits, catalogues are not a sure guide. Neighborhood experience is much better than that of wider districts.

Growing House Plants in Moss.

In some of the Swiss villages, nearly all the inhabitants are engaged in watch-making. They work in large rooms, which, being abundantly lighted, and well warmed, allow the workmen to cultivate plants, that, on account of the uncertainty and rigor of the climate, can not be grown in the open air. The President of one of the local horticultural societies in Switzerland gives, in the "Revue Horticole," an account of the great success with which plants are cultivated in moss in these watch factories. One great advantage in the use of moss, is the readiness with which plants may be grouped in large vases and boxes. In France a "fertilized moss" is sold, but ordinary moss, with occasional application of liquid fertilizers, will answer as well. Ordinary sphagnum, or peat moss, such as is used by florists in packing, may be employed, but the writer prefers the moss which grows in sheets upon rocks, and around the trunks of trees at their base. Wire baskets lined with this moss are used, as are jardiniers of metal, glazed pottery, etc., taking care to provide sufficient drainage. The liquid fertilizer used on these house plants, should be without unpleasant odor; weak guano water, solutions of nitrate of soda, or sulphate of ammonia, may be employed, and very fine flour of bone may be mixed with the moss.

Notes From the Pines.

Having long cultivated our native plants, many readers and friends, when they come across unusual forms of these have kindly sent them to me, and my collection shows that double flowers occur in nature more frequently than is generally supposed. A dozen or more years ago, a young man sent me from a town in Massachusetts

A DOUBLE EARLY SAXIFRAGE.

This (*Saxifraga Virginiensis*) is a very common wild flower, and one of the earliest, but as the center of the little white flowers is greenish, they are not very handsome. The double flowers were little balls of pure white petals and really beautiful. The plant did not live, and I often regretted its loss. Last year a lady brought us, perhaps a dozen plants, of this same double Saxifrage, which she had collected within a few miles of this place, and afterwards brought more, showing that double flowers are not always due to cultivation. Two other early wild species, the Wood Anemone (*A. nemorosa*), and the Rue Anemone (*Thalictrum anemonoides*), occasionally occur double, and have been for sometime in commerce. I had long

Fig. 1.—A DOUBLE-FLOWERED MARSH MARIGOLD.

known of, and once before imported, but never until this spring succeeded in flowering the

DOUBLE MARSH MARIGOLD.

The single form of this, (*Caltha palustris*), which is often incorrectly called Cowslip, makes the brook sides and wet places bright with its golden-yellow flowers, the petals of which shine as if varnished. The double flowers, and they are very double, are little hemispheres (fig. 1) of the same brilliant golden-yellow. All double flowers are, as a rule, more lasting than the single ones of the same kind, as notably seen in the single and double geraniums. The double Caltha lasts for many days,

Fig. 2.—A NEW VARIETY OF MOSS-PINK.

while the single flowers soon fall away. It remains to be seen if this plant can adapt itself to garden soil. Variations in color in wild plants are quite common. Many blue or red, or purplish species having white forms. The Bird's-foot Violet (*V. pedata*), the largest flowered of our wild violets, often changes its pale violet-blue for pure white, and still more rarely, two of the petals are of an intense purple color, and velvety like a pansy.

THE MOSS PINK, OR DWARF PHLOX,

(*Phlox subulata*), usually of bright rosy-purple, is sometimes a snowy white. This occurs in the wild plant and shows a natural tendency to vary. An English amateur florist, the Rev. John Nelson, took this Phlox in hand, and in raising a large number of seedlings, was rewarded by several well-marked forms. The flowers in these varieties, one of which is given in fig. 2, are varied with pale-pink and dark-purple markings in a striking manner. About a dozen of these have been named and put into commerce. The success of Mr. Nelson, with one of our common wild flowers, should encourage our own amateurs to experiment in this direction, while the work would be interesting, a marked success in the production of new desirable forms would have its pecuniary reward. PINES.

Harvesting and Storing Onions and Onion-Sets.

Those who supply the city markets, are wise if they do not have many onions to store for the winter. If bunched and sold as green onions, they bring much more than when quite ripe. A dozen half-grown, or even smaller onions, and half a dozen of full size, usually make a bunch. When from two-thirds to three-fourths of the onion tops turn yellow and fall over, the crop may be pulled, laying the bulbs from two or three rows together, with their tops all in one direction. The onions are left here to complete ripening. If a storm comes on, they may be laid up in cocks, and spread again as soon as it is over. When the top, at the neck, or where it joins the bulb, is twisted and no moisture exudes, they are dry enough to store. The tops are cut off at about an inch from the bulb, and they are spread in a cool airy loft, not more than two feet thick. On account of the difficulty of keeping them, many growers ship their onions directly from the field. On account of the marked fluctuations in the price, others prefer to store them, and take advantage of a sudden rise in the market. The chief difficulty in keeping onions is, their tendency to heat. It does not hurt them to be frozen, if they can be thawed very gradually. If onions in barrels or bulk are frozen, it is well to cover them with hay to the depth of several feet, and keep them in a frozen state as long as possible.

ONION-SETS show when they are ripe in the same manner as large onions, by the turning yellow and falling down of the tops. It is best to shear off the tops as the sets stand in the rows. They are taken up by running a trowel under them, and throwing them upon a coarse sieve, which will allow the soil to be separated. Store the sets in a loft, spread not thicker than three or four inches. At the approach of cold weather, throw them into heaps, and cover with hay or straw, or with mats. If they freeze, keep them frozen as long as possible. Those who raise onion-sets for their own planting, need have no difficulty in storing them, as it is much better to plant them in autumn; they are perfectly hardy, and if planted then, will give an earlier and larger crop than if set out in spring. The land for planting sets should be as well enriched, and as thoroughly worked, as for sowing the seed ("black seed,") in spring. Mark out drills nine inches apart, leaving six drills in a bed, and omitting the seventh for a path. In planting the sets, take care to get them right end up, placing them about three inches apart, and pressing them well down into the soft mellow soil; cover the rows well with soil, using the feet, or by the use of a rake, and finish the planting by rolling the ground.

ONIONS FOR SEED.—Those who raise onion seed, should carefully select the bulbs at harvest time, choosing not only the largest, but those of a shape nearest like that desired for the future crop. These large selected onions are even more difficult to keep through the winter than the general crop, and on this account, as well as others, it is better to set them out in the fall, October being usually the preferable month. The land for seed onions should be fairly rich, and marked out in rows about two and a half feet apart. The onions are to be set about six inches apart; the only precaution to be taken, is to be sure that the bulbs have a covering of at least three inches of fine mellow soil.

Strawberries for Next Summer.

Whether we make a bed the coming fall, or next spring, by setting out plants from runners that have taken root in an old bed, a fair crop of fruit can not be expected until 1886. A few scattered berries may be borne, but nothing like a crop, until such plants have been in their new location for a year. The only way in which it is possible to prepare a bed that will afford a crop next spring, is to set out pot-layered plants. At present, nearly all of the nurserymen supply pot-layered plants; it is true that they cost more than plants dug up from the beds where they have taken root, but only enough more to pay for the extra trouble. If one has an established bed, he can easily strike the runners in pots himself. The earliest runners will give the strongest plants, but it is not too late to layer them early this month. Small pots, two or three inches across the top, are to be filled with light rich soil. Strong runners, just about to take root are selected, and a pot of soil is set or plunged in the soil of the bed, directly under each runner, planting the pot well down, so that its edge will be on a level with the surface of the bed. Place the runner, or rather the young plant at the end of it, in the centre of the pot, and hold it in place to prevent it being blown about, by the use of small hooked pegs, pieces of wire bent like a hair-pin, or even by laying a small clod or stone upon it. When well rooted, which will be in about three weeks, the slender stem that connects the new plant with the old, may be cut, and the potted plants will be ready to set out in the new bed. The sooner such plants can be set out the better, August being the best time if the plants are ready. The bed being well prepared, and manured, set the plants in rows two feet apart, with eighteen inches between them in the row. Give the pots a thorough watering, and the ball of earth may be turned out without the least disturbance of the roots. In a dry time the plants should be watered, and all runners that appear upon them are to be pinched off, in order to concentrate the growth in the crown. At the approach of winter, cover the bed with straw; it should lie thinly over the plants, and thicker between them.

Awnings for Country Dwellings.

Blinds are convenient to protect glass, shut out the sun and admit air, but they are far less desirable for summer than awnings, which afford ample shade without excluding abundant light and ventilation; and standing further from the window, they more effectively ward off the sun's heat. Those made at the shops, with iron frames, cords, pullies, etc., are expensive; but any one can construct simple good looking ones, with small outlay and little work, which will be sufficient to protect windows from hail stones. We give our own method, which works well.—Two pine pieces, one by two inches, are cut as long as the window is wide. Two similar pieces of desired length are nailed to these at the corners—or may be halved on to them—to form the frame, (fig. 1), which is strengthened by short braces at the upper corners. A strap hinge at the back of each lower corner screwed to the window frame, allows the top to turn out and down to a horizontal position. Suitable cloth is tacked to the top window casing or frame, carried slanting to and over the outside bar when let down, tacked to it, and extended six or eight inches further, to form a valance, with its edge scalloped as seen in figure 2. A triangular piece is fitted to each side, sewed at the top, tacked to the side of the frame, and the lower side scalloped continues the front border round the three sides. A cord, shown by the dotted line, extends from the center of the outer bar to an eye at the middle of the top of the window, thence to a side eye, and hangs down. Pulling on this raises the frame,

Fig. 1.

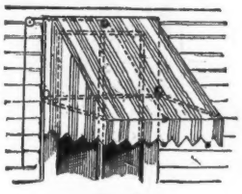


Fig. 2.

gathering the cloth against the top of the window, at evening and on cloudy days. After a rain, the awning should be shaken out to dry, to prevent rotting or decay. With this care, such an awning will last for years. Almost any cheap cloth will answer temporarily, and may be reversed; but good, strong fabric will cost but little more, the work of construction will be the same; it will show better, and be far more durable. The whole expense outside of the cloth will be a trifle, for the pine sticks, two hinges, a few screws and nails, cord and staples.

Shawl Bags.

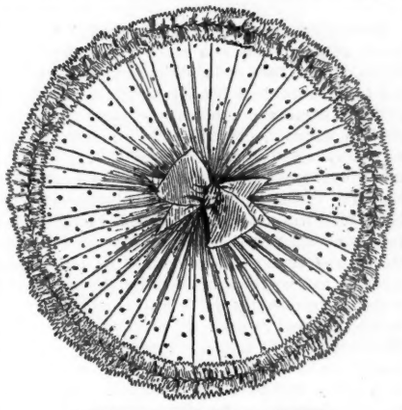
A bag is a capital thing to save a shawl from the dust of a journey and, if of good size, can be used for holding toilet articles, etc. The best material

A BAG FOR SHAWLS.

for making shawl bags is brown water-proof. Cut two round end pieces eight inches in diameter, and a piece twenty inches wide by twenty-five inches long. Stitch these together, leaving the straight seam open nearly all the way across, and bind its edges and the edges of the end-pieces with worsted braid, sewed on with the machine. Close the opening with three buttons and button-holes. Stitch a piece of braid on a band of the water-proof two inches wide, and fasten on firmly for handles. The outside pocket can be made of any size or left off, but it is very convenient for papers. The bag shown in the engraving has an extra row of braid stitched on, but that is left entirely to the taste of the one who is to use it. A person while travelling will never wish to be without one of the shawl bags, after finding out how useful they are.

Wash-Stand Screen.

The screen shown in the engraving is made over a hoop, the diameter of which should correspond



A ROUND WASH-STAND SCREEN.

to the width of the wash stand. Cover the hoop as smoothly and tightly as possible with some bright-colored cambric or Silesia, and make an outside covering of plain or cotton Swiss, half the width of the hoop, and long enough to full on slightly. Gather the opposite edge, and after fastening it firmly on the outside of the hoop, draw it down to the center and finish it with a large bow of ribbon of the same color as the lining. The edge should be finished with a Swiss ruffle, about three inches wide, worked in "herring-bone" stitch, with worsted. Make a loop on the back by which to hang it up, and suspend it so that only three quarters of the screen can be seen.

Wedding Presents.—Beginning House-Keeping.

Everybody likes to receive wedding cards. But with this pleasure often comes the perplexing query, "What shall I give?" The custom of exhibiting wedding presents, is a questionable, if not a vulgar one; and the story of a bride who received so few, that she felt obliged to hire from a jeweler sufficient silver-ware to make a good dispiay, is an intimation of the desire people have, to make their presents show to the best advantage. It would not be strange if the smaller presents were sometimes hid behind the larger, even though the latter, sent because "they must send something that would show well," were unaccompanied by the sincere regard which went with the former. Of course, much uncomfortable, if not bitter feeling results, and unless one can feel independent enough not to care, it is better to give in a less public way. To those who are about to commence housekeeping, a most acceptable gift, and one of which housekeepers in general know the value too well to ridicule, would be a willow basket of suitable size and shape, containing six linen hemmed towels for glass and silver; six soft linen crash dish towels; three hemmed cloths for washing dishes; three soft linen cloths for washing glass and silver, and three cloths, knit of fishers' twine, for washing pots and kettles; three flannel cloths, hemmed, for washing paint, etc.; three roller towels of linen crash, two yards long. These may be added to by the donor in many inexpensive ways. Another helpful gift would be a home-made book. The covers are of gray, brown or black Bristol board, bound with satin, with a spray of flowers painted on them in water colors, or they may be covered with satin, and the flowers embroidered on them. Inside are seven cards of the size of the covers, and of white board, with each day of the week—one on each card—written in illuminated letters at the top. These are intended for the young mistress to write down the special work of each day, and hang the card for the day in the kitchen for reference. This is a great help to system and order in the home. We confess great sympathy for the young mistress who, hitherto unaccustomed to care or responsibility, finds herself at the head of a home which she is to keep up in all its appointments. The table is to be supplied with palatable and nutritious food three times every day, or one thousand and ninety-five meals in the year; the house to be kept neat and wholesome; company to be entertained, and the vexed question to be thrust before her, perhaps every few weeks, whether she or her servants shall rule. There is but one answer to this question. It will be the one that knows the most. So, if the true housekeeper has not learned before marriage, she will begin as speedily as possible to perfect herself in all things pertaining to the comforts of home; so that her servants will not have occasion to reply to her, as an old colored servant said to the writer once many years ago, when asked to perform some service—"Laws now, what do you know—you'se nothing but a child."—Probably the first discouraging trials will be with the cooking, for the ideal and the real in this department are far apart. Cook books are showered upon us and are good and useful, many of them; but they only tell how to do, and not why so many fail. There is comfort, and truth too, in the proverb—"Every failure is one step toward success"—and determined effort to make any one dish perfect, will generally accomplish it. Let us see the reason of some failures in preparing a breakfast. It shall be a simple one: coffee; fruit in its season; oatmeal; fish balls dropped, and muffins of rye and graham flour. These may all be delicious or wretched. We will suppose they do not come up to the expectation of the cook, and will see why. The coffee should be clear, and of distinct flavor. It is muddy and bitter with grounds in the bottom of the cup—well, it was made of coffee ground at the store. It should be bought in the kernel, and burnt, or at least, ground at home. You know then that it is pure. It was not settled. It should have had half an egg with the shell, broken into the grounds, and a spoonful of cold water stirred with them before adding the boiling water. It boiled too long. It should never boil over five minutes, then be set aside ten minutes to settle. The oatmeal is stiff and dry with husks in it. It should be smooth like blanc-mange. There was not enough water added at first. It did not cook long enough. It should boil three hours the day before, and half or three-quarters of an hour in the morning, with added water. The muffins are tough and dry. They should be so light that a touch will break them. They were mixed too stiff, and the oven was not hot enough to bake them in ten or fifteen minutes, which is the longest time it should take. The fish-balls were soggy and fat. They should be of a golden-brown, light, and no fat in them. The reason is, the fat was not boiling hot when they went in. They should cook in three minutes. All these are little things, but great things depend upon them.

ETHEL STONE.

Little Household Conveniences.

It is often convenient to boil several kinds of vegetables in one kettle. Peas, string-beans, and new potatoes cook well together. For this purpose, small bags made of coarse, thin cloth are most excellent. Make the sacks the desired size and run a string through the top. Place each kind of vegetable in a separate sack, and tie the string around the handle of the kettle, so it can be easily drawn out. When the vegetables are

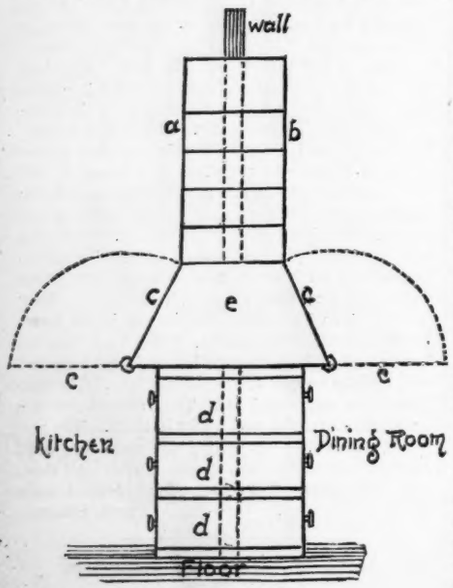
cooked, hang them up by the string for a few minutes to allow them to drain. In cooking a "boiled dinner" in the winter, a favorite dish in New England, the vegetables retain their shape better and are superior in every way when cooked in these sacks. Another article of convenience in the way of a sack is a clothes-pin bag, made after the style of a school-satchel. Make it of heavy shirting, with a flap to button over, so that the pins will be protected from dust. Make a strap of sufficient length to be worn over the neck, allowing the bag to hang down in front or on the side. Such a sack will be found very convenient when hanging out clothes, and if placed over the neck when the clothes are taken in, the pins can be easily cared for.

My way to brush the dust and cob-webs from the ceiling, is to tie a piece of old clean cloth over the broom and draw it across the ceiling. It removes the dust much better than can be done with the naked broom, and without the danger of the ceiling being soiled. In one corner of my kitchen is an old, small-sized table, with several inches of the legs sawed off. It is called the "children's table." It is there my little girls took their first lessons in kitchen work. It is very useful in teaching them to do such work as ironing, washing dishes, etc. I find it convenient also for my use, where I can do a great deal of work sitting down, that would have to be performed while standing if a higher table was used. Where a person is afflicted and not able to remain long on the feet, much of the work can be performed while sitting, if such a table is used. NELLIE BURNS.

A Combination Closet.

E. E. REXFORD.

I was much pleased with an arrangement seen at a friend's, consisting of a closet or cupboard built into the partition between the kitchen and dining-room. The closet, *a*, *a*, projected about eight inches into each room. The leaves, *c*, *c*, opened to form a sort of table for receiving dishes, food, etc., and left a large opening, *e*, for the passage of food, dishes, etc., between the two rooms. Below the projection into each room was ten or twelve inches, and this space was filled with drawers, *d*, *d*, which could be pulled out into either room. They were used for table-linen, napkins, doyles, etc.



A PARTITION CLOSET.

The upper closet or cupboard contained shelves, with glass fronts for china, glass, and silverware. There were four or five of them, each about eighteen inches wide, and three and a half feet long, affording shelves enough for an ordinary family. The washed dishes could be set in from the kitchen side, and taken out for the table from the dining-room side, thus saving time and many extra steps. Two slides at each end, when drawn out, support the turned down leaves. When these leaves were closed, the closet occupied but little space, and had the appearance of a book-case. The one described had ground glass in the lower half of the sash doors. In front of the upper shelves on the dining-room side the upper half had clear glass; the glass doors on the kitchen side being lined with red, the silver and glassware showed to good effect against this background. The china, etc., occupied the lower shelves. The closet could not have been expensive, and the lady of the house assured me it was wonderfully convenient, and a great economizer of her time and work.

The Housekeeper who is a Philosopher.

AMELIA H. BOTSFORD.

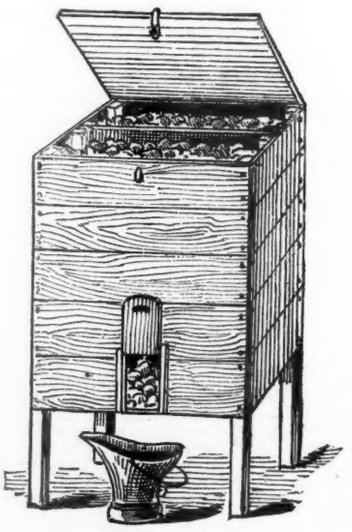
Reasoning upon the really essential material needs of her family, she reduces the number to three, shelter, food and clothing, and first provides for these in the best possible way. If able to select her home she chooses one warm in winter, cool in summer, convenient in arrangement and especially one in a healthful locality. She will care more about good drainage and proper ventilation than for Queen Anne piazzas and ribbon flower beds. She will not desire a house too large for her family, considering that the more room, the more work; and if dependent on her own skill and strength to keep the home in order, she will eschew elaborate furnishings and delicate and fading colors in hangings and carpets. She will buy substantial furniture to avoid frequent renewals and constant repairs, and that as light as its purpose admits to save strain in lifting and handling. She will remember the labor of dusting, and the fading effect of sunshine when tempted to buy fancy carved work and delicately tinted upholstery. There will be system in her management, with a careful subordination of routine to the comfort and happiness of the family. She will not follow a set of rules rigidly, but adapt them to the variations of climate and the reasonable desires of the household.—Understanding that the object of eating is to nourish the body, and not merely to gratify appetite, she will study what articles contain the most nutriment in the most easily digested form: and with due regard to the season will not furnish heating food in summer or a too restricted diet in winter. Her meals will be provided regularly, at proper intervals, to allow the digestive organs suitable periods of rest, and the food will be well cooked and abundant. She will not load her table with indigestible dainties though all her neighbors may; and will waste little time and strength in making cake and pies. She will not be ashamed to have it known that breakfast lacks coffee and doughnuts, that dinner is served without pie, and supper without cake; that her children have a simple repast of bread and milk, or of bread and butter and fruit, or of baked potatoes with milk, convinced that such a meal is better in every way than one more elaborate, one taxing her time and strength to prepare and resulting in a cross, sickly family. She will not be famed for her cakes at church socials, nor importuned for fancy recipes; on the contrary, the neighbors will probably pity her husband because his wife isn't a "good cook." But the babies will be rosy and happy, and the mother will have time for a daily walk, or even to sit down and read by daylight!

She will, of course, provide suitable clothing for the family; and on this point will decide that health and comfort are to be secured at any sacrifice. Each member of the household must be clad with reference to changing seasons. Thin stockings will not accompany heavy cloaks, or exposed throats go with velvet drapery. Every garment will fit loosely enough to insure ease, but be finished in a workmanlike way; the material will be durable and pretty, without being at all striking. As the "philosopher" would avoid wasting time and labor on what would soon be worn out, or discarded as unfashionable, she will avoid the whim of an hour and the extreme of fashion. She will not sanction large expenditure for dress or trimming so elaborate as to require much time and patience. She will consider that to devote the entire energies of a human mind to the subject of dress is a thing that is certainly unworthy of any true woman.

In brief, the philosophic house-keeper has courage equal to her convictions. All, doubtless, would admit that the larger portion of woman's work is not absolutely necessary; but only a philosopher will be able to forever forego the common ambition of "having things like other people."

Convenient Coal Box.

Make the box of any size and form, to contain the coal to be kept, and to fit the place it is to occupy in the wood-shed, cellar or elsewhere, by nailing boards around four corner pieces of scantling, strong enough to bear the weight. Set the bottom to slant towards the front to throw the coal to the opening, which is closed by a board sliding up and down behind two halved strips, nailed on each



CONVENIENT COAL BOX.

side of the aperture. The corner pieces project as legs, leaving the front bottom of the box high enough to easily set a coal-scuttle under it.

Waste from Well and Cistern Pumps.

The drip, and the waste water when several pailfuls are taken out to get down to cool fluid, should never be left to form a "mud puddle" which is unsightly; and the impure water is likely to run back into the well or cistern. Ten minutes' work will nail together a couple of boards in the form of a V of any needed length, which set at a slight incline will carry all the surplus water away. It is perhaps better to set a low box eighteen to twenty-four inches square directly below the end of the spout to place the pail into, and run the V-shaped trough from the outer side of this. Better still is a square underground brick drain, or a tile one, or one made by nailing four narrow boards together; the last-named is less durable, but will suffice for two or three years. Keep it dry around the well.

THE EYES.—For any serious trouble with the eyes, of course a surgeon or occulist should be consulted. Those who read much should be very careful as to the light, which should come from above and over the left shoulder. Gas often flickers and is unsteady, and is much inferior as a light to read by, to a good kerosene lamp. Many with weak eyes have found great benefit from giving them a cold bath the first thing in the morning and the last thing at night. Hold the face in a basin of cold water a few minutes, remove the face from the water with the eyes shut and afterwards gently dry them with a soft towel without irritation.

An Unexpected Journey.

AGNES CARR SAGE.

The great cherry tree in Deacon Dodge's front yard was bending beneath a luscious burden of red and yellow fruit, and Charlie Dodge, perched on the highest rung of a tall ladder was rapidly filling a large basket with the juicy Ox-hearts. He looked anything but happy this sunshiny summer morning, although the birds twittered gaily in the green branches around him, and every fifth cherry popped into his mouth instead of the basket. "Its a downright shame," he grumbled, "to keep a fellow at work on the Fourth of July, and I wish all the cherries were in Jericho."—"Never mind Charlie, boy," said his mother, who had come out to secure some of the fruit for a pie, and overheard his complaint. "You know it is only because your father was called away unexpectedly, and he is afraid rain and birds together will make havoc of the cherries if they are left a day longer. Be spry and you will be able to go to town and see the fireworks this evening." She returned to the house, and the lad was left once more alone, but not for long. A whistle sounded down the road, and a merry voice sang:

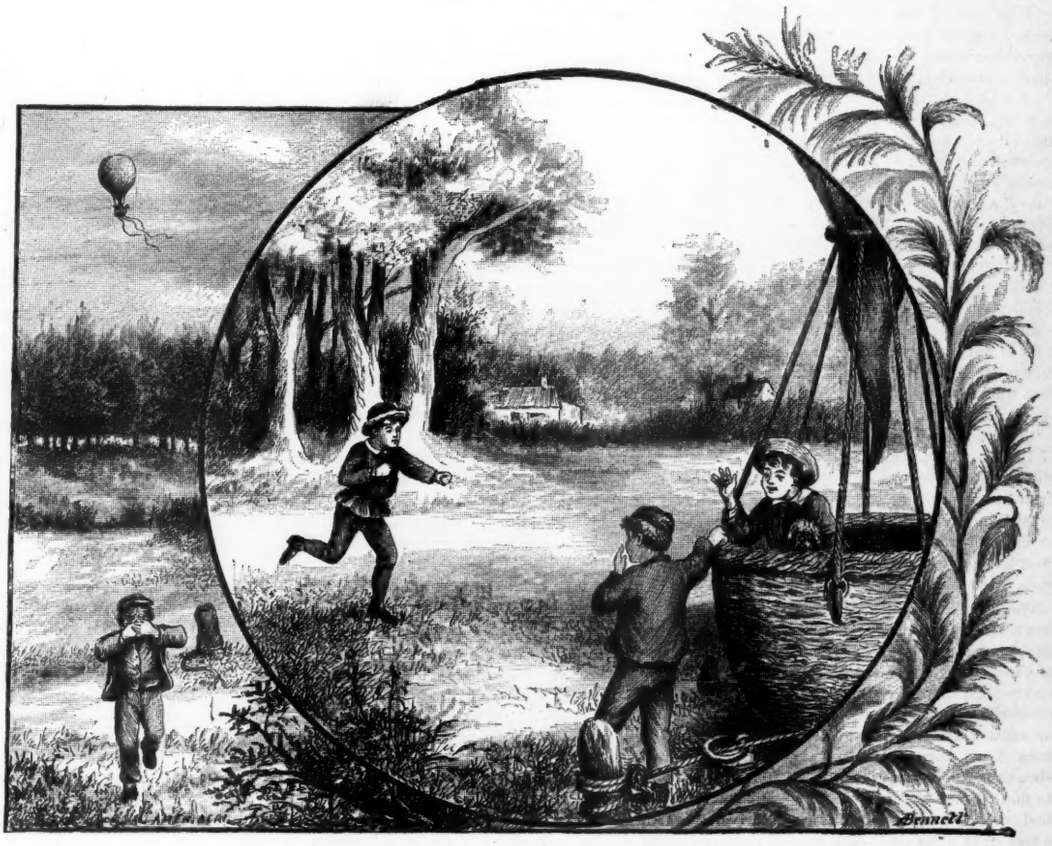
"Squeak the fife, and beat the drum,
Independence Day has come."

And then, as Charlie's freckled face suddenly appeared, framed in green leaves, two boys came to a halt and called, "Hollo, what are you doing up there! are'nt you going to town to see the celebration?"—"I can't," sighed Charlie. "Pa had to go to Dorchester, and left me all the cherries to pick before night." — "Glad I'm not you then, for there is to be great sport in the Park, a greased pole, hurdle and sack races, and at three o'clock a woman is to go up in a balloon. Wish she'd take me with her. But why can't the cherries wait until to-morrow?"—"Father thinks it will rain to-night and spoil them."—"Nonsense! there is'nt a cloud to be seen," and Jack Martin, and Bobby Button turned their faces up to the sky, which was indeed "deeply, darkly, beautifully blue," without a speck to break the clear expanse.—"I think so too," said Charlie climbing out on a limb, and tilting up and down, "and oh! I do want to see the fun awfully."—"I tell you what," suggested Jack, "you come with us and see the sport, and we'll come back with you at four o'clock and get all the Ox-hearts gathered by dark."—This was a generous offer, but Charlie hesitated. "I don't know," he said, "I'm afraid pa would'nt like it, and the robins are so saucy and greedy they eat up all the best ones."—"My teacher says they deserve their share for killing the worms," said Bobby, "and just think all you will lose. Every one is going, I don't believe there will be another boy left in Pinville."—"Will you be sure and come home at four and help me?" asked Charlie, sorely tempted.—"Yes, sharp!" said Jack, "so throw us down a handful of your bothersome cherries and come along, for it is getting late.

Thus urged, Charlie filled his friends' and his own pockets, and without telling his mother his intentions, slid down the tree, and was soon trudging along the dusty road toward the county town some three miles distant from Pinville, the rural village where the trio lived. It was a warm day, but the highway was gay with merry parties in holiday attire, and as they entered the town, the music and firing was almost deafening. Houses were patriotically decked with flags and banners, masqueraders in quaint costumes as the "boys of '76," amused the spectators, and by the time the main-stand on the green was reached, from which the chief man of the place was to read the "Declaration of Independence," Charlie had forgotten everything except the enjoyment of the hour. But he was both surprised and annoyed to suddenly discover that his mother's little pet dog Mab had followed him, and now came crouching to his feet, sure that she was too far from home to be sent back. "What a bother," he exclaimed, but Jack just then called his attention to a gaunt female in a linen duster, with a green veil tied over her bonnet. "See, that is the balloonist," he said "is'nt she a guy?"—"Yes," put in Bobby, "but she's smart, and knows what she is about. She gets fifty dollars for her airy trip. And may lose her life."—So the lads wandered on, with Mab at their heels, listening to the Spread Eagle speeches, laughing at the efforts of some country clowns to reach the ham on top of the well-greased pole, popping cherry stones at every cat brave enough to venture out on the "Glorious Fourth," and investing their small stock of pennies in lemonade highly flavored with molasses, until at length they came to the balloon, which looked like some huge brown monster pinioned to the earth. "The car looks comfortable," said Charlie, "and I see a stock of provisions have been laid in for the voyage."

At that moment a bell struck quick and sharp upon the air, the cry of "Fire! Fire!" resounded on all sides, and a sudden rush of the crowd made Charlie hastily seize Mab and tuck her under his arm, for fear of trampling. It is marvellous how quickly a mass of people will collect, and how quickly they can disperse, and in five minutes the park was almost deserted, except by the three friends. "Only a barn or a hay-stack," said Jack, "let us stay here, and have a good look at the balloon." And as an engine went thundering by, followed by a stream of men, women and children, Bobby climbed unobserved into the wicket-car and seated himself on the cushioned seat.

"Up in a balloon, boys, up in a balloon," he sang, "come in and let us play we were on our way to Cloudland."—"Cloudland, sure enough," said Jack, glancing up to see that the sun had disappeared, and the sky was dark and threatening. "Why! all the blue is gone, and the wind is rising, we shall have a gale."—"Oh, the cherries!" cried Charlie in dismay, but the thought did not prevent his stepping into the aeronaut's basket to see what it was like. Jack was a mischievous chap, and thinking to give his friends a scare, slyly cut one of the ropes and began swaying the enormous machine back and forth. Both started up in affright, but were soon laughing at the joke, and rather enjoyed the motion.—"I wish we could go up a little way, and be pulled down again," remarked Bobby, when, even as he spoke, a fierce gust of wind—such as sometimes arises in summer—suddenly swooped down upon them, struck the balloon until it shivered like an animal in distress, and before the boys could realize what had occurred, the remaining fastenings were snapped, and with a bound that threw them from their seat, the brown ball flew up like a wild bird let loose from its cage, stopped, wavered, and then began once more slow-



"UP IN A BALLOON, BOYS."

Drawn and Engraved for the American Agriculturist.

ly, but steadily to ascend.—"Let us out, let us out," screamed Charlie, struggling to his feet, but already the earth was many yards below. and he saw Jack's horror-stricken face as he tried vainly to clutch the hanging ropes. Bobby would have jumped, but Charlie held him back, and poor little Mab whined piteously, as she was tossed from side to side by the swaying motion, and the ship of the air with its youthful passengers flew relentlessiy upward and onward. "There is no help for it," gasped Charlie at last, sinking back white and trembling, "we are off for Cloudland and no mistake."—"But what will become of us?" asked Bobby, struggling manfully to keep back the tears as he watched the crowds below fade into tiny specks, the friendly houses and trees, and even the flames of the burning building disappear in the distance.—"I don't know," groaned Charlie, and oh, how he wished himself back in the old cherry tree, while the faces of his father and mother rose reproachfully before him.

"It was Jack's fault for cutting the first rope," said Bobby, "and the others could not have been securely fastened."—"We ought never to have gotten into the car," said Charlie, "and here comes the rain." Sure enough, they had entered a wet cloud, and were drenched to the skin, but as they mounted higher the sky became clear, although they could see it was raining beneath them. They were above the clouds which shut out the earth like a heavy fog.

"It is sort of fun, too," exclaimed Bobby, becoming exhilarated, "like flying, and how small everything seems."—"Fun I don't fancy," said Charlie, gloomily, "and the trouble is we don't know where we may come down."—"In Europe, or Africa, maybe," cried Bobby, rather pleased at the idea.—"In the ocean more likely, to be drowned and eaten by sharks, and I think we are descending now. Throw out a second bag." They did so just as they skimmed the top of some forest trees, which made the car careen so they had to cling to the sides for dear life.

On they went, sometimes one way, sometimes the other, as the various currents of air struck them, now in danger of being dashed to pieces against some tree or rock, now floating out of sight of human habitation, and it seemed as though they must have travelled hundreds of miles by the time they saw the sun set in crimson and gold, and the stars come out in the blue vault above.

"I am hungry," said Bobby, and then he thought of the box of provisions. "Madam Green Veil will have to give us her supper to-night," and he drew out a couple of sandwiches, one of which he pressed upon Charlie, who, however, was too forlorn to eat, bitterly regretting his disobedience, and clasping the dog in his arms, murmured: "Oh! Mab, poor Mab! shall we ever see home again!"

There was no moon, and the darkness settled down thick and dense. It was useless to look out any longer, and at length overcome with dread and homesickness, the two boys said their prayers, and sobbed themselves to sleep; while beneath the cloudy sky the frail bark drifted on without guide or ballast, truly at the mercy of the winds. It must have been about midnight, when a severe shock awakened each lad with a frightened scream, to find themselves once more at rest. The balloon had come to a standstill, but where? "We are in a tree or in a jungle," said Bobby, putting out his hands and feeling in the darkness.—"For here are leaves all around us, and the ropes seem to be caught in the branches."—"Shall we try and reach the ground," asked Charlie, "the balloon may fly off with us again."—"No, I guess its gas is pretty well exhausted. Better wait until daylight, or we may land in a nest of cannibals or rattlesnakes. We may be in Japan, for all we know."—Mab began to whine, but was quieted with a piece of meat, for fear of awaking the savages or beasts of prey, and shivering with cold in the chill morning air, the boys sat imagining all sorts of horrors. For to their excited imagination every rustle was a venomous snake, and every shadow a crouching foe, while minutes seemed hours, and they could hardly believe it was but yesterday they had seen Jack's terrified face gazing after them in fright and amazement as the balloon left the park.

At last the day dawned, and with it a great and wonderful surprise; for as the light revealed surrounding objects, they rubbed their eyes and gazed at each other in mute astonishment. A tropical scene, with palms and cocoanuts, and dusky forms, would not have amazed them half as much as did the reality, when they discovered that they were not in Europe, Asia, or Africa, but anchored safe and firm in the leafy boughs of Deacon Dodge's favorite cherry tree.—"Is it a dream?" ejaculated Charlie, staring at the old stone-house, the familiar well, and the juicy Ox-hearts, now discolored and cracked open by yesterday's storm. The collapsed balloon forbade that, however, and now Mab's joyful barks brought Jack Martin tearing from the house, to shout and hurrah in an ecstacy of delight and welcome. When they once more touched the earth, Charlie felt as though he would rather meet a band of savages than his anxious pale-faced parents, who now came hurrying to meet and greet them.—"Oh, papa," he cried, "I am so sorry the Ox-hearts are spoiled, and you may take my rifle, and all that I have to pay for them."

But the good Deacon only sobbed as he clasped his son in his arms.—"My dear boy! I am sure you have been punished enough, and I care for nothing since you are safe at Cherry Farm."

Charlie never forgot the terrors of that night in the clouds, and though scientific men decided that the balloon went some distance west, and then, the wind veering, was blown almost directly back again; the boys scorn the idea, and are sure they travelled thousands of miles, if indeed they did not go round the world on their unexpected journey.

The Doctor's Talks.

One of my young friends asks about "Monkey's Bread," a fruit which he has seen mentioned in some book. Monkey's Bread is the fruit of a tree better known as the Baobab tree, a native of the western portions of Africa, and known to botanists as *Adansonia digitata*. The tree is noticeable for the great size of the trunk in proportion to its hight. Trees with a trunk thirty feet in diameter are only about seventy feet high. The tree is also remarkable for the great length of its branches and of its roots. The shape of its leaves, and of its very large white flowers is shown below in figure 1. The fruit, also shown, is sometimes a foot in length, and has within a mealy pulp, which

Fig. 1.—THE MONKEY BREAD.

is mixed with stringy fibres; it has a very pleasant sour taste, and is eaten not only by monkeys, but by the people, who usually eat it with sugar, which the monkeys doubtless do not add.

I was reading the other day of the manner in which the English bumble bees injure the bean crop. The bean most commonly cultivated in England, is a kind seldom seen in this country. It has a tall, straight stem, with long flowers in little clusters. These flowers are too long for the bee to enter the usual way and reach the honey, as its

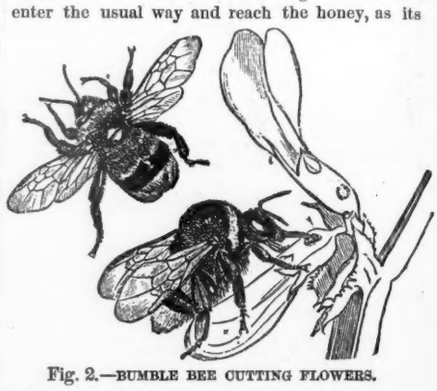


Fig. 2.—BUMBLE BEE CUTTING FLOWERS.

tongue is too short. The bee wants the honey, and failing to get at it in one way, he does just as you would do—he tries another. Knowing that there is honey at the bottom of the flower, the bee cuts a hole through from the outside, and reaches the sweets by a short cut, as shown in figure 2. This is very "cute" on the part of the bee, but bad for the farmer, as the pods from the blos-

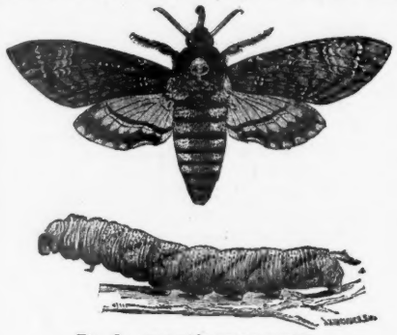


Fig. 3.—DEATH'S HEAD MOTH.

soms thus injured, seldom ripen. Some farmers pay boys to hunt for and destroy the bee's nests, while others think that, on the whole, no great harm is done, as a portion of the pods are not injured, and these grow all the larger for the thinning.

YANKEE BEES AS SMART AS BRITISH.

It is not only the English bees that make use of this trick to get at the honey, but our own bees do the same. The beautiful Rocky Mountain Columbine first came into cultivation a dozen or more years ago; its great beauty is due, in part, to the very long spurs to its flowers. One morning I discovered the flowers, upon my only plant, in a miserably bedraggled condition. On examination, I found that each spur had a small hole near its end. What could have made it? When more flowers opened I was early on the watch, and found that the bumbles, failing, so to speak, to enter by the front door, and reach the honey at the bottom of the long spurs, broke in at the rear, and like sensible bees, cut a hole through which they could reach the honey with their tongues without trouble.

"HOW CAN I KNOW THE DEATH'S HEAD MOTH?"

This is a question that has been more than once asked of me, the questioners not being aware that this is an European insect. The caterpillar is very large, and in Europe feeds upon the potato plant, just as our great green Potato-worm—more frequently called Tomato-worm—does in this country. The moth, (figure 3,) the largest in Great Britain, has a spread of six inches; its wings are brown, marked with yellowish and black. The back of the moth is black, and on its chest there is a marking in light yellow, which closely resembles the picture of a skull. In Europe the ignorant people, while not at all afraid of the caterpillar, which does all the mischief, have many superstitions about the moth. Its appearance in the house, especially if it flies against and puts out the light, is thought to foretell serious illness or death.

Many a Slip twix't the Claw and the Lip.

In a feathery grove of waving seed-weed, at the bottom of the deep blue sea, a Smooth and a Spiny lobster, met one day, with angry looks and bristling claws. A feud had long existed between the two families to which these lobsters respectively belonged, but to-day a fresh quarrel had arisen, and it occurred in this wise.

During a morning stroll for the good of his health, the Spiny lobster had suddenly come upon a sheltered nook, in which lay a large fish which had died a natural death, and for some reason had escaped the notice of the monsters of the deep. Delighted at the discovery of this unexpected treasure, Mr. Spiny-back hastened home to summon his family of children—comical little fellows, some six inches long—to a feast and picnic in the seaweed grove. What was his wrath and disgust, when, upon his return, he found an American or Smooth lobster in quiet possession of the prize, and evidently about to bear it away to his favorite crevice in the rocks, and there enjoy it with his own particular friends.

"See here, sir," shouted Spiny, with great pomposity, his long feelers trembling with excitement, "that is my property, and I was coming with my family to feast upon it in the shade of yonder algæ. Please then to immediately drop that fish, and retire at once from our company."

"So ho!" cried Mr. Smooth-back, evidently feeling "that possession was nine points of the law," "there are two sides to that question. I just found the fish myself, and certainly shall not give up the prize at your unceremonious command."

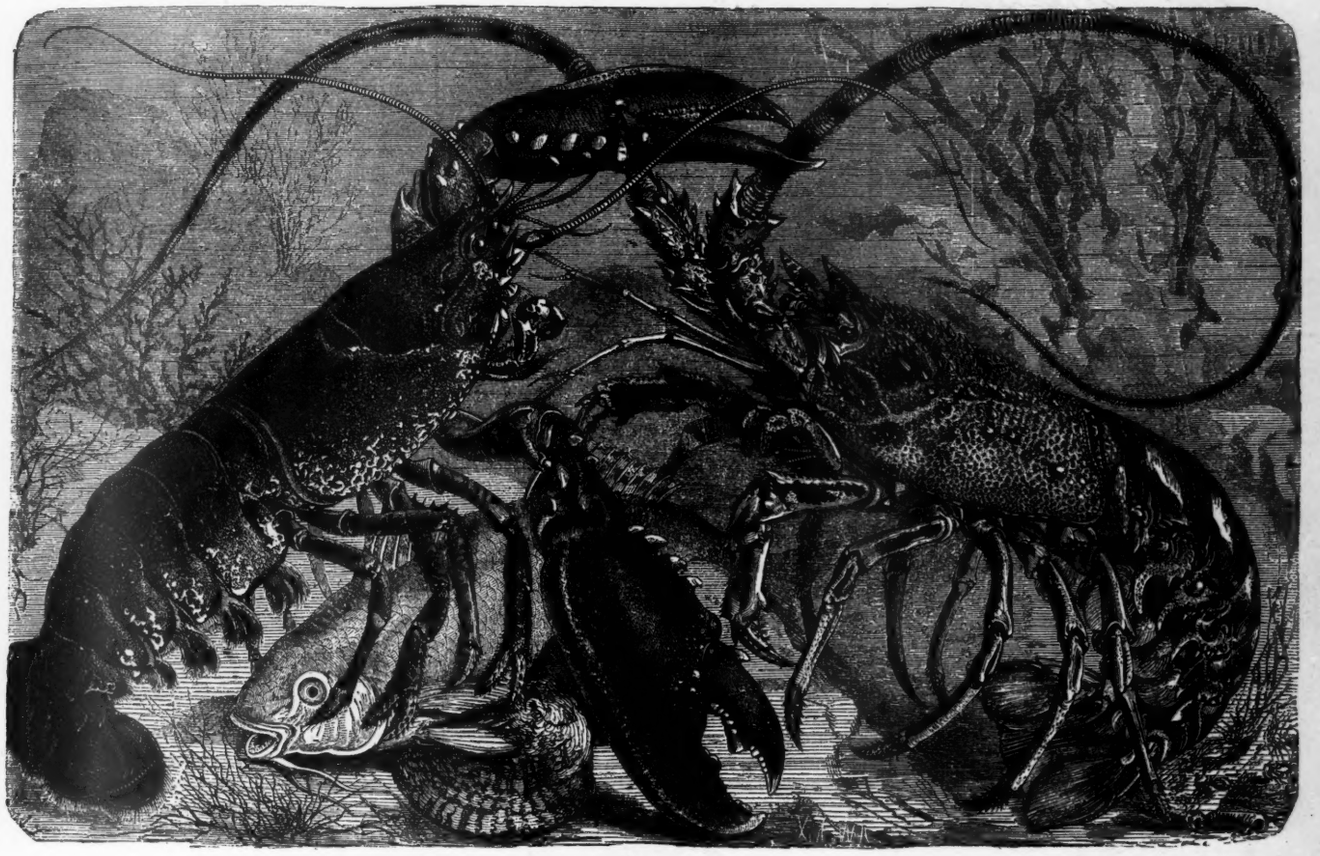
"Do you know who I am sir?" growled the Spiny lobster, his pop-eyes standing out farther than ever. "I belong to the great Pali rus family of Europe, many of whom are giants, and weigh from fifteen to twenty pounds each. We too, were highly prized by the ancient Romans, and shall I yield to a common Smooth-shelled lobster like you, who are not much better off in your family relations than a poor miserable crab?"

"Just as you please," retorted the Yankee, enraged by this taunt, "but you will have to fight for your dinner if you want it," and he waved his mammoth claws menacingly, with a scornful glance from them to the small delicate extremities of his opponent, standing in rage before him.

Spiny-back drew back a pace, "I discovered it first," he faltered, "and by right it is mine. If we took the matter before a judge, I feel very confident he would decide against you."

"But I have it," and the two lobsters glared at each other so ferociously, that all the little Spiny's ran off and hid in a perfect panic of terror.

"Why don't you cut it in two, and each take half," suggested a Solomon-like oyster, who had been a silent listener. But the crustaceans were too angry to heed, and crying, "all or none!" one seized the fish by the head, and the other by the tail, and tugged and fought until the water foamed and boiled around them. The European sacrificed half of his antennæ, and the American lost one of his large claws, which, imposing as they appear, can be knocked off with a very gentle blow, though fortunately for Mr. Smooth-back new ones will grow out again in time. Hot and furious the battle raged, and they might have ended like the Kilkenny cats, if a sudden clap of thunder had not caused each to spring at least a foot from the ground, for lobsters are all peculiarly sensitive to these thunder and lightning shocks, and as peal after peal continued to shake the earth and sea, forgetful of enemy, dinner, and all, except their unreasoning terror and desire to escape, the Smooth and the Spiny lobster each scrambled off to his hole, while a big fish that had lain quietly awaiting its chance, swallowed the bone of contention, greatly to the amusement of the wise oyster, who chuckled in his shell, and whispered to his wife—a fair, white pearl, "Ah! there's many a slip twix't the claw and the lip."



A DISPUTE AT THE BOTTOM OF THE SEA.

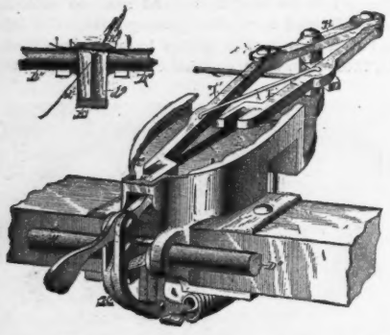
Engraved for the American Agriculturist.

Can You Talk with the Pencil?

If I had asked, can you draw? you would not perhaps have been so much interested. Yet drawing is in a great measure talking with the pencil. If one asks the way to a neighbor's, or to the next village, you can reply by using paper and pencil in a manner that will be more useful than mere words. You will start with the point where you are; direct him to take the next right-hand road, to take the next left-hand turn, after passing a large elm tree, and after crossing the bridge to keep straight on. All these points you can make upon the paper, and the inquirer, if he forgets your directions, can look at the sketch and be sure he is right. So, if you are about to build a rabbit hutch, or a bird house, make a sketch of it, that is, say upon paper just what kind of an affair you will build. If it does not quite suit you in some parts, rub out and draw anew, for it is much easier to make alterations in your house on paper then it is in the thing itself. Then having fixed upon the size for the house, mark down the figures, and you will be pleased to find how much easier it is to build, if you have the sketch at hand to tell you how. "But I can't draw"—Did you ever try? The first lesson you need is, to draw a straight line. Try to draw a horizontal line about two inches long, without the use of a straight-edge or ruler. If not straight at first, try again, and keep trying until you can make one that is fairly straight. Then make another line about a quarter of an inch from the first, and then others, all an equal distance apart. Next try perpendicular lines in the same manner. A few lessons in drawing lines, horizontal and upright, making a number of both at different distances apart, but all of each set at equal distances, will be very useful in educating the eye and the hand. You can also try drawing long lines, others one-half as long, and so on, first making the length by your eye, and then applying a measure. These will be capital exercises for odd times. T.

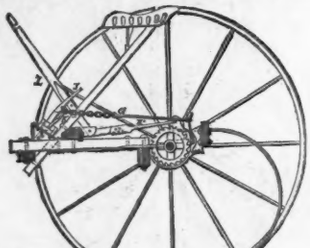
OUR RECORD
OF
Recent Agricultural Inventions.

Corn Planter, Check-Rower.—A. Anderson, Galesburg, Ill. Feb. 12; No. 293,395. This invention relates to that class of check-row attachments to corn planters, in which a rock-shaft placed transversely



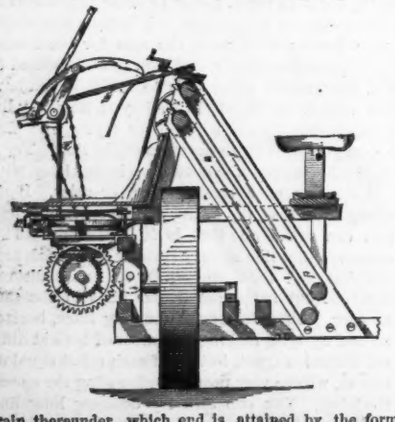
on the planter, is provided with a forked lever at each end, to be swung by knots or tappets on a stretched wire, thereby giving motion to the rock-shaft, such motion being transmitted to the slide-bar used to actuate the seed measuring and discharging devices. The engraving shows the parts containing the improvement patented. The motion of the rock-shaft *d*, *d*, being transmitted through the rocking plate *k*, the sliding bars *i*, *i*, and the oscillating bar *h*, to the planter seed-slides by suitable mechanism not shown. The claims of the patent embrace only the combination of the parts shown.

Horse Rake.—J. M. Clark, Greeley, Colorado. Feb. 5; No. 293,998. The inventor claims as new, the combination with the lever *i*, and chain or rod *g*, connected to a forward moving pawl, of the spring-catch *j*, and bell-crank lever or treadle *k*, pivoted to the frame-



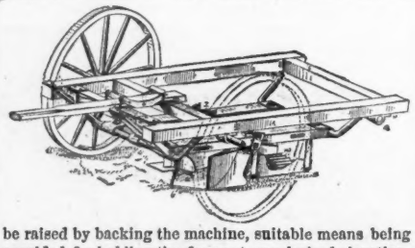
work of the rake, in position to adapt it with the spring-catch to move in an oblique plane, so that it may be operated by the driver's foot to bring the parts above named into action to dump the rake. The rake is held down by a forward pressure on the lever *s*.

Grain Binder.—J. H. Gordon, Rochester, N. Y. Feb. 19; No. 293,649. This patent covers two improvements. The object of the first is to sustain the overhanging end of the standard *f* of the binding-arm shaft rigidly in position, without interfering with the passage of the



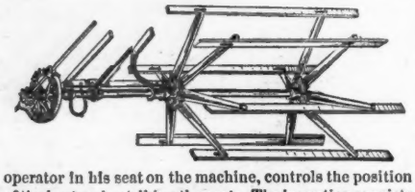
grain thereunder, which end is attained by the form and position of the braces *b*. The second part of the invention provides a kicker or ejector, which projects outward immediately below, and beyond the edge of the table, thus ensuring the delivery of the bound bundle, and preventing the bundles from clinging to each other, and being carried by the machine. These improvements, shown in section in the engraving, apply particularly to the machines previously patented by the same inventor.

Potato Digger and Ridger.—B. W. Binford, Richmond, Va. Feb. 12; No. 293,403. This invention is designed for preparing ground for planting potatoes and root crops, for covering and cultivating such crops, and for digging them when matured. It consists broadly of a cart from the axle and main frame of which is suspended a frame carrying adjustable plowing and digging attachments. This frame is so constructed as to



be raised by backing the machine, suitable means being provided for holding the frame at any desired elevation. The engraving shows the machine with attachments for harvesting. When wanted for planting, the inclined plate *k*, and the grating *n*, are removed, and the standards *i*, are provided with plow points and turning boards.

Harvester Reel.—Walter A. Wood, Hoosic Falls, New York. Feb. 26; No. 294,103. The object of this invention is to simplify the mechanism by which the

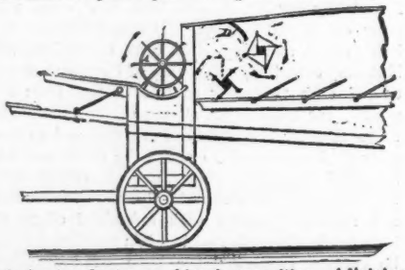


operator in his seat on the machine, controls the position of the beaters in striking the grain. The invention consists in the means used to secure the operating lever in different positions at the will of the operator. The reel-shaft supports the beaters, and takes its motion from the bevel-wheel. On an iron plate bolted to the reel-support is pivoted the operating lever by a bolt, which is adjusted to engage certain perforations in the lever-supporting plate, thereby varying the inclination of the beaters as desired.

Ditching Machine.—J. T. Fitzpatrick, Monticello, Ohio. Jan. 1; No. 291,043.—This machine comprises the truck-wheels and frame, the plow *e*, the regulator-wheel *g*, the cutter-bars *k*, the scoop *i*, the endless

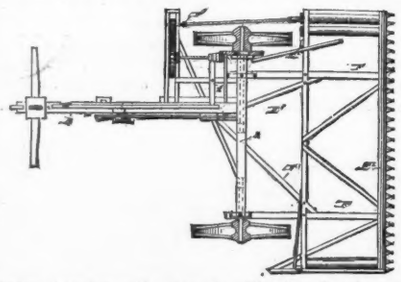
apron *j*, for carrying the dirt to the delivery apron *m*, and the adjustable support *t*, together with the means for adjusting gearing, and operating these parts. The operation of the machine will be readily apparent from the engraving.

Threshing Machine.—A. T. Hawley, Alton, Ill. Feb. 5; No. 292,019. This invention aims to secure the more complete separation of grain from straw, by em-



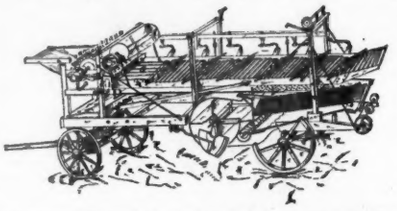
ploying two beaters working in opposition. Adjoining the threshing cylinder *a*, and oppositely revolving is a heavy beater, which throws the straw upward against the guard *d*. Above and behind the heavy beater, is a light beater, which strikes the straw as it is falling from the guard. The wings of both beaters are ironed and armed with spikes. The engraving shows a longitudinal section of a portion of a thresher containing these improvements.

Harvester.—C. S. Stickle, Pekin, Ill. Feb. 5; No. 293,202. The aim of the inventor is to improve the means for lifting and lowering the forward portion of a "header," that is the portion which carries the sickle



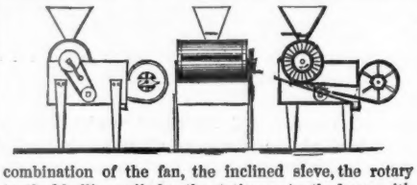
frame, together with those for adjusting the elevator frame, and operating the elevator. The engraving shows a plan view partly in section, the elevator frame and the arms of the reel being removed. The claims of the patent embrace the bars f, f^1, f^2, and k, upright standards carrying adjustable bearings, and secured to the bars f; the transverse bar a, with a fixed bearing, and short independent axles in a; the tongue b, and various attachments thereto.

Threshing Machine.—A. J. Hoag, Battle Creek, Mich. Feb. 19; No. 293,876. The inventor's aim is to provide more efficient means for separating grain from its straw. To this end he provides mechanism for holding the fingers at different inclinations with respect to the beaters; also special grating-bars, for facilitating



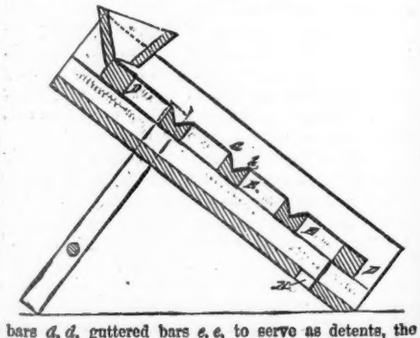
the escape of the grain to the lower shaker, and means for adjusting the grating-bars in relation to the beaters. The engraving shows the improvements applied to an ordinary threshing machine of the vibrator class, the inclosing boards being removed.

Huller, Cleaner, and Separator.—W. W. Jackson, Bethany, La. Feb. 5; No. 293,029. The inventor claims as new in this pea or bean huller, the



combination of the fan, the inclined sieve, the rotary toothed hulling cylinder, the stationary toothed case with openings for the discharge of grain and trash, as shown in the engravings.

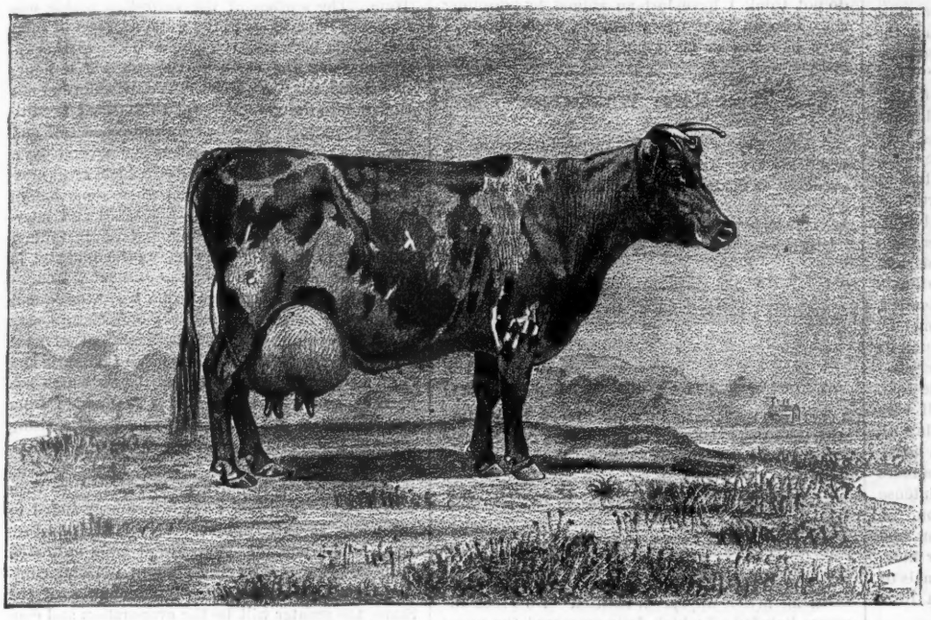
Cockle Separator.—J. M. King, Rochester, Minn. Feb. 5; No. 293,039. This cheap and simple separator, is said to be rapid and efficient in action. It comprises suitably inclined bottom and side boards, cross-



bars *d*, *d*, guttered bars *e*, *e*, to serve as detents, the screen *g*, held in the gutters, and smooth plates of metal *k*, to facilitate the movement of the grain to the screen. The cockle finds a way out through the opening *h*.

A Fine Milch Cow.

We herewith present a portrait of a pure-blooded Ayrshire Cow. "Duchess of Smithfield" is a fine specimen of a comparatively modern but very hardy and useful breed of cattle. She is a perfect type of the famous Douglas family of Ayrshires, and has taken first prizes at State Fairs since 1879. With a record of nearly nine thousand quarts of



A FINE AYRSHIRE COW.—*Drawn and Engraved for the American Agriculturist.*

milk in a single year, on moderate feed, and without forcing, she stands high among the list of great milkers. Her grand udder measures sixty-eight inches in circumference, and indicates, better than words can express, the great capacities of the animal as a producer of milk. The average Ayrshire cow may not be chosen for her beauty, but the constitutional vigor, great milking powers, and the general air of business shown in the picture (from a photograph by Schreiber) must inspire any lover of true bovine worth with more than thoughts of profit. This cow very thoroughly combines the good qualities of a superior milch cow. We wish her tribe may increase among our dairy farmers.

The National Horse Show.

The second National Horse Show held in Madison Square Garden, in the City of New York, was, like the first, gratifying to its promoters. There was a fine display of horses, of which we shall print engravings in the future.

The "Garden" is really an amphitheatre, capable of seating some ten thousand persons, and of accommodating as many more. Within the oval arena, well covered with tan-bark, half a dozen or more four-in-hand coaches may be driven at once, while around the sides of the great building, occupying an entire city block, excellent stalls and loose boxes were arranged for the comfortable accommodation of the horses. The premium list was very full, and the prizes attractive, varying from twenty-five to five hundred dollars each, the same animal being permitted to enter for two or more prizes in different classes.

If there is any one thing which is discouraging to lovers of horses attending the State Fairs, it is the fact all the best animals are shut up and locked in dark stalls, where it is almost impossible to get a sight of them at all, except through the special favor of their keepers. Here all the loose-boxes were slatted, so that their occupants could be distinctly seen, and the horses in the stalls, when not eating, were almost uniformly tied heads outward by two hitching reins, so that even vicious horses could not bite.

The show consisted of breeding animals of the numerous classes, as well as of useful ones. Thus there were several classes each of Thorough-breds, Arabians, Trotters, Roadsters, Horses-of-all-work, Heavy Draught, Clydes, Normans, Coaching horses, etc., numerous classes of driving horses, as carriage horses, "T-cart" or "Dog-cart" horses, "Cobs," Ponies, Coupé horses, Four-in-hand teams, etc., Saddle-horses, Cobs, Ponies of all sizes shown under saddle, Hunters, those entered for jumping, besides trained fire-engine horses, Police-horses, Cavalry horses, etc.

All these classes, one hundred and twenty-one in all, in which there were entries, were exhibited and judged in the arena before the assembled multitude, who were free to express their approval by applause or otherwise, when the ribbons were awarded. Popular judgment in such cases is usually very just, and it requires good judges to independently brave the disapproval of the crowd.

The impression made by the banged and docked horses, the grooms, the footmen and drivers in livery, the tights, top-boots, etc., and the vehicles of all sorts of strange and useless forms, was much as if a piece of "Rotten Row" or "Pall-mall" or some other fashionable part of London had been imported to New York and put on exhibition as a sort of after-clap to the walking matches and other great shows, which occupied the same arena a few days before.

Nevertheless as England really does lead the world in horse matters, especially in the use of the horse as an article of luxury, why should we not imitate her, and if need be, import English horsemen to show our rich young fellows who want to ride to hounds, to chase foxes (or scent-bags) across the country, to drive four-in-hand, tally-ho coaches, and all that sort of thing, how to do it all in true cockney style on American soil.

The most numerous impressive classes were, as may be supposed, those of horses for pleasure and show-driving, and for use under saddle. I here include the coaching teams, and all the various carriage teams, matched cobs, ponies, etc. The hunters formed a very interesting group, having a highly thorough-bred look, being extremely muscular, very thin, greyhound-like, and usually tall horses, with grand bone, large joints, and a suppleness really surprising. One of these, Mr. Fred. Gebhard's "Leo," a six-year-old chestnut gelding, sixteen and a half hands high, cleared a bar six feet six inches high, landing safely with his rider—the highest jump of which there is any record in either English or American horse annals.

Ponies were very numerously represented, Shetland, Highland, Welsh, and many other kinds. The smallest full-grown one was the seven-year-old mare "Midget," standing only nine and a half hands high (thirty eight inches). The dividing line between ponies and cobs seems to be fourteen hands or thereabouts. "Cobs" are pony-built horses, above fourteen and under fifteen hands high.

There was an astonishing disparity in size between the little fellows of nine or ten hands, and the enormous draught horses which were shown in their classes. There were not many entries of these, but they made up in bulk. One gray mare stood eighteen and a half hands high, and weighed, it was said, nineteen hundred and sixty pounds; a gray gelding of four-years-old, was seventeen and a half hands high, and weighed eighteen hundred and fifty pounds. A dapple-gray Norman stallion, "Marquis," shown by H. G. White, of Syracuse, sixteen and a half hands high, and weighing eighteen hundred pounds, was by odds the best stock horse of the heavy ones.

There was a small but choice show of coach stallions, a class of horses which it will pay farmers to patronize if they have large, sound, well-formed mares. Among these were two French stallions of large size and wonderful grace and beauty of form and action—"Tyrolien" and "Telesphare," belonging to W. S. Gurnee, of New York. The Arabian stallions, presented by the Sultan of Turkey, to Gen. Grant, were the only pure Arabs shown. Fine specimens of strong blood.

The growing love for the horse, and for the manly sports which center about him, is becoming both a fashion and a passion with our rich men, and it certainly should be in every way encouraged as likely to produce lasting benefit to the country in many ways. America may well feel proud of her trotting horses. Let us try to produce a breed of good walkers.

The Turnip Fly.

The wavy-striped Flea-beetle, or "Turnip Fly," (*Haltica striolata*), is a great pest to young turnips when first breaking through the soil. If the young seedlings can be protected at this time until a few leaves form, they usually need no further care. One of the best preventives is to have the soil rich and well prepared, that the crop may push forward rapidly. Some turnip growers have found it profitable to employ boys with bags attached to curved forked sticks, which are run astride the rows of young plants. The beetles, when thus disturbed, jump into the bag and are afterwards destroyed. A common application is equal parts of wood ashes and land plaster, entirely covering the young turnip leaves. Finely powdered air-slaked lime may be dusted on with a bottle-shaped tin dish, having holes in the bottom, and a wooden handle in the top.

A Tomato Trellis.

Some support for the tomato vines is a necessity in the garden, not only for the sake of order and neatness, but the fruit is better when kept from contact with the ground. This support may vary

A TRELLIS FOR TOMATOES.

from the simple expedient of laying brush along the rows, to a carefully made trellis, intended to be used year after year. We prefer a sloping trellis to a straight one. The engraving shows one made with wire. A trellis in this shape may be readily made by the use of stakes and poles. Drive stakes of suitable length into the ground for supports, and use any small poles that may be readily procured for the slats. These may be nailed to the supports, or lashed to them with small wire or tarred twine.

About Ticks.

The Ticks belong with the Spiders and Mites, which are now admitted as a sub-order of insects. The true insects have three parts to the body, undergo a change from a larval or grub state, and the perfect insect has three pairs of legs. The ticks and their relatives have the body in two parts, have four pairs of legs, and undergo no change. Ticks are found in all parts of the country, but are most numerous in the warmer portions. They pass the early part of their lives upon plants as vegetable feeders, and hence are commonly called "Wood Ticks." The males, when they have served their purpose, die, but the females, like the female mosquito, cannot complete their career unless they gorge themselves with blood. The female ticks, whenever opportunity offers, attach themselves to animals. While some are confined to particular animals, as the bat, others have no choice, but attack cattle, dogs, and wild animals, as deer, etc. They have been found upon snakes and lizards, and will attach themselves to man. The female has a leathery skin, capable of being greatly distended, and when she attaches herself to an animal by means of her hooked claws, commences to suck its blood and enlarges to many times her former size. The engraving represents a common cattle tick, both before and after she has filled herself with blood. The writer has seen, in Texas, cattle with dozens of ticks attached to their sides, much larger than the one here figured. He has had even a more intimate acquaintance with them, when an intense itching indicated their presence on the person. A drop of water of ammonia allayed the itching, and so disgusted the tick that she released her hold. Every humane cattle owner will rid his animals of this pest. Grease alone, or mixed with a little

WOOD TICKS—NATURAL SIZE AND MAGNIFIED.

kerosene, and applied to the parts to which the ticks attach themselves, usually where the hair is thin, near the udder, will make the locality unpleasant for these annoying bloodsuckers.

A Fence Post Axe.

An axe for making rail holes in fence posts, is shown in the engraving. It is an ordinary axe blade, cut and hammered down by a blacksmith.

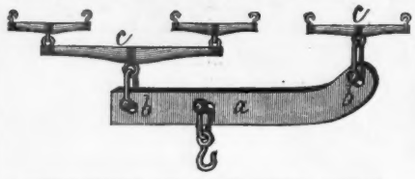
A POST AXE.

The blade is of the width desired for the hole in the post. With this axe and a good post-holder, a skillful person can make the rail holes rapidly.

MORE ABOUT LAMB-KILL.—Charles Ives, of Miscouche, Prince Edward's Isle, writes us, with reference to an article in June last, that he has had "a wide and most unpleasant experience" with the "Lamb-kill," which grows abundantly in his locality. His object in writing is to make known what he regards as a simple and certain remedy for animals poisoned by the plant. When a lamb is poisoned, it usually cannot stand, and when he finds one in this condition, he takes it under shelter as quickly as possible. "I take half a pint to a pint of milk, and while this is warming, I get a good sized onion, or better, a bunch of shallots (they being stronger), peel, and chop them as fine as possible. The chopped onion is mixed with the warm milk in a narrow mouthed pitcher, and given to the animal, making it swallow as much of the chopped onion as possible, as that is the important part of the dose. In very severe cases it may be necessary to repeat the dose after a few hours. I do not think I have lost an animal by poisoning since I began to use this remedy, while before, I have had five or six lying together, dead."

Three-Horse Whiffletrees.

A subscriber sends us his method of arranging whiffletrees for three horses abreast. The larger evener, *a*, is made of inch and a half plank cut with



WHIFFLETREES FOR THREE HORSES ABREAST.

a curve, so that the single whiffletree, *b*, is on a line with the others attached to the double evener, *c*.

Increase of Rainfall in the Western States.

H. C. EWING, NEBRASKA.

In the January number of the *American Agriculturist* an article appeared, entitled "Do Trees Increase Rainfall?" which fully answered the question propounded by its title, but as the author had evidently given the subject much thought, we were sorry he did not explain or even give his views of the cause of the increase of rainfall in the Western States, particularly in the district west of the Missouri. There is great practical importance in this question to those who are making themselves homes in the broad Western States, and investing their money in that region.

As to one fact, the writer of the above-mentioned article seems to be in error. The amount of rainfall in Illinois and Iowa, instead of decreasing, as he states, has been increasing year by year, so that in sections where, fifteen years ago, the complaint was of the scant rainfall, the people now are unable to properly plant, cultivate, or harvest their crops, because of the wet weather. This is not fiction but a stern reality, as farmers in those States will testify. Nor has this increase been confined to the region east of the Missouri. A few years ago all Nebraska, west of the "Missouri River Bottoms," was considered an unproductive waste on account of the drouths, there was no rain to keep vegetation alive. But soon the western limit of the rain belt was moved to the meridian of Lincoln. So recently as 1878-9 no rain fell in that district in Southern Nebraska from August 1878 until June 1879. Wiseacres said there is no use going further west, no rain ever falls there—it was a desert and nothing would grow. But during the past three years the amount of rainfall has been gradually increasing in the meridian of Lincoln, Neb., until the amount during the year just past has been nearly equal to that in any of the Atlantic States. The wise men have been compelled to move the western boundary line of the rain belt westward successively from county to county, until now the acknowledged rain area covers nearly the whole of the State of Nebraska. Such are the facts in regard to this western advance of the rain area and so general, regular and continuous has it been that we must look for the cause, not to electrical disturbances, or spots on the sun, but to something more intimately connected with the tide of immigration and advance of civilization.

As was truly said by the writer of the above-mentioned article, the winds that bear the rain and moisture to the western plains come from the east and south. These winds from the Atlantic and the Gulf, lose their moisture as they advance, and reach the highlands east of the Rocky Mountains almost devoid of moisture. In the days when the prairies were vast stretches of uncultivated land, the small amount of rain that did fall immediately ran from the surface into the "draws" or small creeks and creek beds, and thence at once into the rivers. The surface of the unbroken prairie was almost as impervious to the water as a bed of solid rock would have been. There could be little evaporation from the earth by the sun a few hours after a rain, for the water had run off from and not soaked into the ground. But as the land is cultivated, the rain is absorbed by the loose soil and remains a source of evaporation for several days. Some of it goes to form springs, which are bursting forth in cultivated districts where none before existed, and others, which were small and intermittent, have become strong and never failing. This change in the springs shows the increase in absorption of the rainfall by the cultivated land.

In this fact of the absorption and consequent evaporation of greater amounts of moisture may be easily seen the cause of the westward advance of the rain belt. The winds from the Atlantic and Gulf meet and carry with them the air which has been charged with the moisture evaporated from the cultivated districts, and expanding in rising over the land in its course toward the Rockies the temperature falls and rain is precipitated. The rain is, therefore, in much greater quantities than would have fallen had no moisture been added to the winds in their course. Very little moisture was added when the winds swept over unbroken prairies. The greater the amount of land cultivated each year in the eastern counties of the State, the greater will be the evaporation and consequently the greater the rainfall in the western counties. The cultivated region acts as a relay battery, as it were, adding new power to the current of wind that was almost exhausted of moisture. As the rainfall increases to the westward, the hardy farmer moves thither, breaks the land, and the rain area is moved just as much further west. Thus the process goes on, and probably will continue until the timber line of the Rockies is reached. This increase will continue in all parts of the State, as long as there is unbroken pairie to the east. We do not contend that cultivation in a district produces a greater amount of rainfall in that particular region, but we do maintain that on the western prairies, where the rain-bearing winds come from the east and south, the rainfall west of the cultivated land will be increased, and as agriculture advances so will the increase in rainfall. True as is the remark of the writer of the article referred to, that "our weather appears to be subject to important changes far beyond the reach of a forest or clover field," yet on account of the peculiar condition of this western country, and the direction of its rain-bearing wind currents, we are constrained to believe that we have herein briefly stated at least one of the leading causes of the increase of the rainfall in the Western States.

A Leaf Gatherer.

A simple and convenient device for gathering leaves from a lawn, or elsewhere, may be made by

A LEAF GATHERER.

fastening heavy cloth to two light poles, as shown in the engraving. The leaves are raked into a heap and the gatherer placed on it, after which the poles are brought close together and the leaves lifted.

Prominent Butter Makers.

There is no dissent from the decision of candid and capable dairymen, that the Improved Butter Color of Wells, Richardson & Co., Burlington, Vt., is the best in the world. Such men as A. W. Cheever, of Massachusetts, E. D. Mason, Vermont, Francis A. Hoffman, Wisconsin, use it, and recommend it as superior to all others.

BUY THE BEST AND CHEAPEST,

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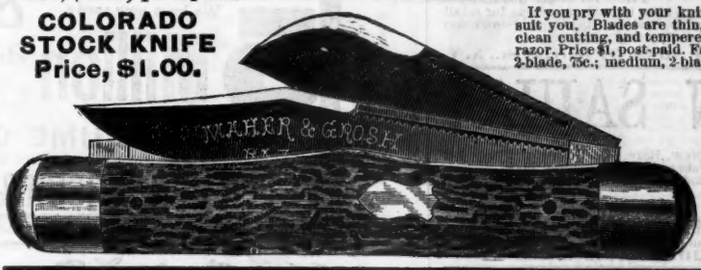

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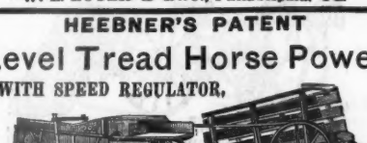

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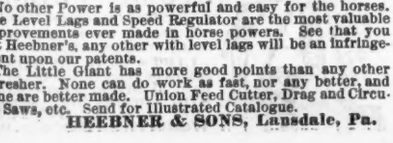

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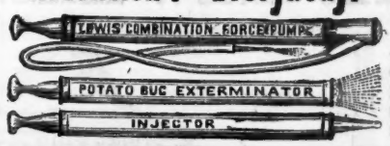

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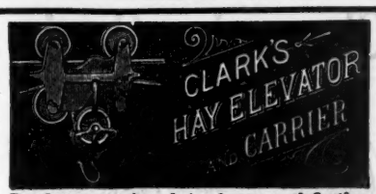

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NEW YORK.

PATENTS. Attorney's fee contingent on Success. Address E. H. GELSTON & CO., Washington, D. C.

WORTH $100 to any farmer or dealer.

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New Catalogue 1,000 Illustrations of latest Improved Labor-saving Implements and machines for the farm. By Mail, **20** cents. Send for it.

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The Pennsylvania Force-Feed

Fertilizer Grain Drill.

Warranted the most perfect Force-Feed Fertilizer Drill in existence. Send for circular, A. B. FARQUHAR, York, Pa.

Pennsylvania Agricultural Works, York, Pa.

Farquhar's Standard Engines & Saw Mills.

Address, A. B. FARQUHAR, York, Pa.

STEAM ENGINES,

A. B. FARQUHAR, York Pa.

Cheapest and best for all purposes—simple, strong and durable. SAW, GRIST MILLS AND MACHINERY generally. Inquiries promptly answered. Send for Illustrated Catalogue

Vertical Engines, with or without wheels, very convenient, economical and complete in every detail, best and cheapest Vertical in the world.

Fig. 1. Fig. 1. is Engine in use. Fig. 2 ready for use.

Boilers to order best charcoal iron; full capacity

SEND FOR CATALOGUE

Fig. 2.

THE FARQUHAR SEPARATOR

(Warranted.)

Pennsylvania Agricultural Works, York, Pa.

Horse Powers, Threshers and Cleaners, Clover Hullers, Saw Mills, &c.

Lightest draft and most simple, economical and perfect in use. Wastes no grain cleans it ready for market.

Address A. B. FARQUHAR, York, Pa.

The "NEW MASSILLON" Thresher

ALWAYS IN THE LEAD.

IMPROVED FOR 1884.

Also ENGINES, Portable, Traction and Skid. SAW MILLS, Light and Heavy, etc.

For full description send for our 1884 Catalogue, just out. Sent free to all interested. Name this paper, Address

RUSSELL & CO., Massillon, O.

Champion Grain and Fertilizer Drill.

POSITIVE FORCE FEED DISTRIBUTERS.

FERTILIZER ATTACHMENT

Unequalled, and is warranted to distribute accurately, evenly and easily *any* commercial fertilizer—wet or dry.

Draft light and easily handled. Construction simple. Materials and workmanship the best. We also make the WHIPPLE SPRING TOOTH SULKY AND FLOATING HARROWS, CULTIVATORS, &c.

These HARROWS are adapted for use on all kinds of soil, and are the best *pulverisers* known. No farmer can afford to be without one. Ample time given for trial before settlement. Attachments for sowing grain, grass-seed, and fertilizers, furnished with Sulky Harrows when desired. Send for pamphlets describing latest improvements in Harrows and Drills

GERE, TRUMAN, PLATT & CO., Owego, Tioga County, N. Y.

☞ NO FARMER SHOULD BE WITHOUT

DARNELL'S PATENT

FURROWER AND MARKER! SEND FOR CIRCULAR

H. W. DOUGHTEN Manufact'r, Moorestown, (Burlington County), N. J.

NOW IN USE—36,989.

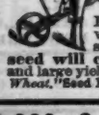
All persons say their goods are the best. We ask you to examine our Improved Keller Positive Force Feed, Grain-Seed and Fertilizing Drill and our Hay Rakes. They are as good as the best, and can be sold as cheap. All are warranted. Circulars mailed free. Newark Machine Co., Newark, Ohio. Eastern Branch House, Hagerstown, Md.

IMPROVED FARM IMPLEMEMTS!

Improved Steam Engines, Best Railway and Lever Horse-Powers. Threshing Machines. Straw-Preserving Threshers, La Dow's Disc and Steel Spring Tooth Harrows. Eagle Sulky Horse Rakes. Cultivators, Feed Mills, Feed Steamers, etc. etc. WHEELER & MELICK CO., Albany, N. Y. Established 1820. Send for Illustrated Catalogue.

WHEAT CULTURE!

THE SEED DRILL REGULATOR

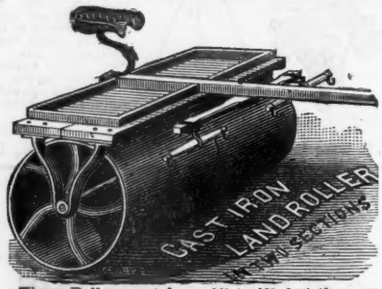


SAVES two-fifths of the Seed and one-half of the Fertilizer. Lightens the draft. Prevents clogging. Seed will come up several days sooner. 50 per cent. more seed will come up. Produces strong plants and large yield. Send for pamphlet "*How to Raise Wheat.*" Seed Drill Regulator Co. Lamont, Centre Co. Pa.

18,000 Carpenters and Farmers

now use our Lake Make Filers to file saws, so they will cut faster than ever. Teeth all of equal size, Pitch and Bevel. Single one sent free on receipt of $2.50, where no Dealer keeps them for sale. A discount to Dealers or others wishing to sell. For Illustrated Circulars, *Testimonials* from persons who use them, etc., address E. ROTH & BRO., New Oxford, Penna.

Post-Office Money Orders make payable at Gettysburg, Pa.



These Rollers cost from $40 to $60, but they are worth more than six of any other kind. They last for generations. For circulars address

DICKEY & PEASE, Manf'rs, Racine, Wis.

[This is the Firm that manufactures the Celebrated "Young Giant" Fanning Mills, known the world over. Also the "Peerless" Corn Sheller. Their goods are always first-class.]

Address, TAYLOR MFG. CO.

(Please Mention this Paper.) Chambersburg, Pa.

BINDER TWINE

TRADE MARK E TRADE MARK E

After a test of four years, has the unqualified endorsement of machine-makers and farmers throughout the grain-growing region. It will bind more grain to the pound, with fewer breaks, than any other twine made; is strong, even, free from bunches and knots; and by saving the time of the farmer, is worth double the price of other twines. Ask your agent for "DIAMOND E. BINDER TWINE," and take no other.

SUPERIOR

GRAIN DRILLS,

With Adjustable Force Feed, Spring Hoe, Hoe Pressure and Fertilizer Attachments.

Superior Broad-Cast Seeders, *Cider Mills, Hay Forks, Carriers and Equipments.* Descriptive Catalogues free.

The SUPERIOR DRILL CO. Springfield, O.

KEMP'S MANURE SPREADER PULVERIZER and CART COMBINED.

Greatest Agricultural invention of the Age! Saves 90 per cent. of labor, Doubles the value of the Manure. Spreads evenly all kinds of manure, broadcast or in drill, in one-tenth time required by hand. Illustrated Catalogues free. KEMP & BURPEE MF'G CO., Syracuse, N. Y.

THE DAVIS

STUMP PULLER

Received Centennial Medal.

Is now in use in Canada and nearly every part of the U. S.

LIFTS 20 to 50 TONS. Stands on runners, worked by two men. 5 Sizes. Prices $35 to $70. Circulars free. Manufactured by H. L. BENNETT, Westerville, Franklin Co. Ohio,

A "Fruit Tree Invigorator."

A correspondent who inquired about the medication of trees by introducing foreign substances into a hole bored in their trunks, was answered in March last. We there stated that the claim that trees could be medicated in this manner was an old one, and that we doubted if it ever had any useful application. In Bulletin No. 8, of the "Massachusetts State Agricultural Experiment Station," recently issued, we find an analysis of "The Phœnix Fruit Tree Invigorator," made at the Station. The analysis shows that the principal constituents are: Moisture, Sulphur, Lime, and Carbonic Acid, which made up ninety six per cent of the whole. The report says: "A mixture of an essentially corresponding composition, may be produced at an expense of from twelve to fifteen cents per pound at retail cost, by taking from forty to forty-two pounds of flowers of sulphur, and fifty-eight to sixty pounds of sifted wood ash."

Cures for Deafness.

Many inquiries are answered here. To begin with, before trying any mechanical appliance or any medicine for deafness, first ascertain the cause of the trouble. While a difficulty in hearing may be due to an accumulation of hardened ear-wax, or other causes that may be removed, deafness is often due to an obliteration of the ear-drum, or other derangement of the auditory apparatus, and is beyond remedy. When deafness is due to such causes, it is folly to expect relief from medicine of any kind. Audiphones, dentiphones, and other appliances to be held between the teeth, are sometimes useful as aids to hearing. These are sold at a high price, and being suited to particular cases only, cause much disappointment and complaint. A palm-leaf fan, or piece of card-board, held between the teeth, will usually answer as well as any of the "phones." Artificial ear-drums are simply impossible. Deaf persons should first consult a competent physician, and ascertain if the trouble in their case is curable.

Metal Indicators.—Divining Rods.

A letter from West Virginia asks us to send the writer at once "an instrument to hunt gold and silver, something like a magnetic needle." The superstition that certain persons were able, by means of a forked stick, to discover hidden precious metals and streams of water is a very old one. Even now, "water witching," as it is called, is practised in various parts of the country, and we have known persons of intelligence and of good sense in most matters, who think that water may be discovered by the use of a forked hazel twig, or divining rod. In the early days of California gold fever, some shrewd chaps, taking advantage of the general impression that gold and silver could be detected, offered a "gold indicator," which it was claimed would show the presence of the metal by the movement of a compass needle. Though these affairs were found to be perfectly valueless, the letter of our West Virginia correspondent shows that they are not forgotten, and the readiness with which people believe in the impossible. Iron is the only metal that will affect the magnetic needle (save one or two very rare ones), and there is no method of constructing a needle that will show the presence of gold or silver.

"Mutual Self-Endowment."

C. H. Ashford, Oconee Co., Ga., sends us a circular and writes: "I am satisfied that an expression of your opinion on its merits will be appreciated by a number of your readers, not only in Georgia, but in other States."—The document is issued by "The Mutual Self-Endowment and Benevolent Association of America." It appears that this "Association" has but little idea of the value of time or the shortness of life, when they expect people to read through eleven pages of a dull, imaginary dialogue, in order to find out what they propose. One or two pages of direct, pointed statement would serve the purpose better. The association with the long title originated at Longview, Gregg Co., Texas. It proposes to act as a life insurance company and an endowment office at the same time. The writer of the dialogue makes the scheme look plausible, but the first and important question with regard to all schemes of this kind, is as to the integrity and the responsibility of the managers of this Association. Of this we have no means of knowing. We would not advise any one to invest in this or any other Association, until fully satisfied of its stability, and its ability to fulfill its promises. So far as Life Insurance goes, there are several companies as safe as any human institution can be, in which one can insure his life with a feeling of absolute security.

Boston Silver Ware.

Boston is the headquarters of several concerns which vie with one another in the extravagance of the advertisements and circulars relating to the silver-plated wares they offer. One circular informs the recipient that his "name has been handed to us, together with first-class recommendations," etc., a fiction to start with. These circulars are so industriously scattered that the inquiries about the Boston concerns are very numerous. One of them styles itself "The Waltham Watch and Silver-plate Company," and a correspondent in Elgin County, Ont., is very indignant that the name of a well-known corporation, like the Waltham Watch Company, should be attached to such a trashy document. One circular cautions the public against dealing "with the shop over the way," in such a manner as to lead to the suspicion that both may be parts of one establishment. One concern explains its ability to sell its wares at the very low price on account of "a secret process" used in their manufacture—which is all bosh. Cheap ware means little silver, as the purchaser will soon find out in using it. In the purchase of plated ware the buyer is entirely in the power of the seller. There are in every city dealers whose word as to the quality of the articles is a sufficient guarantee. The only safety is in buying of such dealers. The floods of circulars, the useless machinery of "coupons," etc., all needlessly increase the expenses of doing business, and the purchaser is directly or indirectly made to pay their cost.

The "K. & K."

This has not, as some might suppose, any reference to the "Ku-Klux Klan," of several years ago, but is the trade-mark of a concern which professes great things in the way of curing diseases. A correspondent at Mulmur, Ont., sends us several clippings with reference to this K. & K. concern, which has its headquarters in Michigan, and asks our opinion about it. Our opinion is, that this K. & K. affair could not carry on its business in the State of New York, or in any other State which has laws to protect its citizens from quackery of all sorts. The advertisement makes a great spread over the costly instruments owned by the concern. It is a pity that there is no law against selling surgical instruments to irresponsible parties. The K. & K. concern now propose to

SPECULATE IN CURES.

They propose to sign contracts of the "No cure, no pay" style. No physician of any standing in his profession, nor one fit to be employed, would be concerned in any arrangement that guarantees cures.

TO OUR NEWER SUBSCRIBERS.

There is nothing about which we have more frequent inquiries than about medical establishments, and medical men of various kinds. The fact that a physician advertises at all is against him, though there are some cases in which he may do so properly and legitimately. If one boasts that he has special skill in the treatment of particular diseases, set him down as a quack. If a man or concern advertises that he will perform a certain cure, or return the money if not cured, avoid the man or concern as a medical fraud.

"We Will Fight it in The Courts."

Say some makers of Oleomargarine and other bogus butter compounds, when asked their position as to the law recently passed by the Legislature of the State of New York, and approved by the Governor. This law prohibits "the manufacture of any oleaginous substance or substances, or any compound of the same, other than that produced from unadulterated milk, or the cream from the same, any article designed to take the place of butter or cheese produced from pure unadulterated milk, or cream from the same, nor shall sell or offer the same as an article of food." An exception is made in favor of pure skim cheese from pure skim milk.

THE PENALTY FOR VIOLATING THE LAW

is a fine of not less than one hundred, nor more than five hundred dollars, or imprisonment for not less than six months, nor more than one year, or both fine and imprisonment. The Act provides for a "New York State Dairy Commissioner," charged with enforcing the law.

THE GREAT DAIRY INTERESTS OF NEW YORK STATE

have had a hearing by the Legislature, and a law has been passed with full provisions for its enforcement, and dairymen in other States will watch the workings of the law with great interest. If the Oleomargarine makers propose to test the law in the courts, it is hoped that the Commissioner will give them an opportunity at once. We believe it to be a wise, just, and constitutional Act.

OUR POSITION AS TO OLEOMARGARINE,

from the first, has been, that it is not butter. If it can not be distinguished from butter, so much the worse. The whole success of these butter substitutes depends upon their sale as butter. The law requiring them to be branded with their proper names has been found useless. Now a more stringent Act, prohibiting both manufacture and sale, is passed and its efficacy is to be tested.

A FRAUD UPON THE FARMER AND HIS WIFE.

The farmer who takes all proper care in selecting his cows, and in providing them with proper shelter and food, and the farmer's wife, who prides herself upon the neatness of her dairy, and the excellence of her butter, are both brought into unfair competition with machine made mixtures of fat, which, whatever paid, so-called scientists may certify as to their wholesomeness, *are not butter*. The fact that were the stuff branded with its real name, not a pound could be sold, is sufficient answer to all allegations as to its quality and wholesome character—whatever the stuff may be.

IT IS NOT BUTTER.

If it could be sold for what it is, we should not object. As it is sold as butter, the law properly says it shall not be sold at all. The farmers and the purchasers are in earnest in this matter, and we are emphatically on the side of the farmers and the purchasers, and opposed to Oleomargarine and all other bogus butters with names that end in *ine*.

Among Our Contributors.

Salt is not a direct fertilizer.—*L. H. Bailey.*

It pays to thin fruit when young.—*Prof. W. J. Beal.*

Of incubators, the best need watching.—*Col. M. C. Weld.*

There are strawberries, and strawberries.—*Dr. George Thurber.*

There is perhaps one farmer in ten that keeps records.—*Prof. W. A. Henry.*

A padlock is not an unnecessary ornament to a duck-house.—*D. Z. Evans.*

Harmony of color is of the first importance in house furnishing.—*Ethel Stone.*

Ensilage is well deserving of many further trials by practical farmers.—*Prof. J. M. McBryde.*

The secret of success in keeping large numbers of poultry, is not to crowd them.—*P. H. Jacobs.*

The horse's shoe should be accurately fitted to the foot, and not the foot to the shoe.—*Dr. D. D. Slade.*

Every farmer should teach his children to cherish and protect their feathered friends.—*W. D. Boynton.*

It will rarely be possible to have work done successfully by hand help alone.—*Prof. S. E. Thompson.*

All stabled animals should stand upon floors as nearly level as is consistent with cleanliness.—*L. D. Snook.*

The soil and not the atmosphere, is the main source of the nitrogen which we find in our crops.—*Sir J. B. Lawes.*

On fruitful soils in good climates, the best people not only remain, but leave their children.—*George Geddes.*

Nearly all the processes of productive industry, are only successive steps in the process of condensation.—*Pres. A. S. Welch.*

If I git a pail full of milk, the ceow kicks it over, I'm teetotally undone forever Squire, and its no use to farm it.—*Tim Bunker.*

May not the simple adhesion of the liquid to the butter globule, have been mistaken for the investing membrane?—*Hon. X. A. Willard.*

In the hog family, as in the human, too much idleness, and too long-continued high-keeping, entails evil consequences.—*Hon. F. D. Coburn.*

I should feel highly gratified to see our farmers give evidence of knowing their rights, and of daring to take and enjoy them.—*F. D. Curtis.*

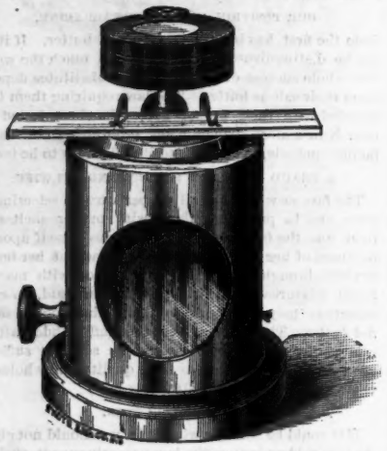
The addition of green feed, in some form, to the winter ration of our farm animals, will be found advantageous for many reasons.—*Dr. M. Miles.*

Carp can be made a toothsome feature of the dinner-table, if the mistress of the kitchen comprehends the mysteries of the sauce boat.—*R. B. Roosevelt.*

Each kind of animal should be allotted the foods best suited to its special requirements, and to the organs of digestion peculiar to its species.—*Prof. F. H. Storer.*

The Agriculturist's Microscopes.

We continue to receive the most gratifying compliments as to the superior quality and handsome appearance of the New *American Agriculturist* Mi-



croscope, which we have had expressly manufactured for the friends and workers of the *American Agriculturist*. Here are some sample replies:

NEW SMYRNA, Fla., April 30, 1884.
I have received my Microscope, and am more than paid for the money that I gave for it. It is just what I have been wanting for some time, and it is just what every one needs." J. E. THOMPSON.

WETHERSFIELD, CT., May 20, 1884.
"I would also acknowledge the receipt of the Microscope, which came safely to hand, and is a very neat, tasty little instrument." J. W. GRISWOLD.

ITHACA, N. Y., May 19, 1884.
"I received the Compound Microscope to-day, and after a careful examination, I can cheerfully say it is better than my highest expectations. As to the quality of work on it, the makers' name is a sufficient guarantee for that. Please therefor, accept my thanks."
H. W. SMITH.

YPSILANTI, MICH., May 19, 1884.
"The instrument exceeds anything I ever saw for the amount of money invested in it. It is certainly a marvel."
PROF. J. H. HOPKINS.

FARMLAND, IND., June 4, 1884.
"The Microscope sent by mail fully meets my expectations." N. W. WRIGHT.

EWART, Iowa, April 9, 1884.
Please find enclosed $1.25 for one of your Simple Microscopes. I am a subscriber to your good old journal, and have the same confidence in you that I would have in a brother. I will get up a club for your paper in some future time. DANIEL F. WHITE.

This is the season of the year when these Microscopes can be employed to a great advantage by farmers, in very many ways. In fact, one of these Microscopes ought to pay a farmer ten times its cost every year, in the examination of bugs and insects of various kinds, which are injurious to vegetation.

The *American Agriculturist* for March, contains a full description of this new and beautiful Microscope.

If you have not this number of the paper, and would like to see the description, write to us, and we will forward it to you. This Microscope is sent, delivered free, by us, to any part of the United States and Territories for $2—and delivered free to any actual subscriber of the *American Agriculturist* for 1884, for $1.25. Furthermore, we will present one, delivered free, and send the *American Agriculturist* to any new subscriber, post-paid, for $2. Still further, we will present this Microscope to any present subscriber, delivered free to him, if he sends us two new subscribers to the *American Agriculturist* for one year, at $1.50 each.

Something for all Old Subscribers.

We are now preparing a special edition of the *American Agriculturist* for all persons who have been subscribers to the *American Agriculturist* within a period of ten years, and who are not *now* subscribers. This copy of the *Agriculturist* will contain matter of great value to every such old subscriber, in fact matter that he will read with the liveliest interest. Will every present subscriber, on seeing this, please notify every individual in his vicinity, who, at any time, has been a subscriber to the *American Agriculturist*, and is not now one. By so doing, he will greatly oblige the Publishers.

Getting up Clubs for the American Agriculturist.

You need not wait until winter before raising your club for the *American Agriculturist*, but begin now. Subscriptions can begin with any number. We will forward Specimen copies to every one who wishes to raise a club.

BE PROMPT, please, in informing us if there is any delay or trouble in receiving your paper, or answer to any complaints or inquiries sent us. The *American Agriculturist* goes to press regularly every month, and it should reach you on the same day every month. You will confer a favor if you will immediately write us, if there is the slightest delay in its receipt.

Progress and Prosperity.

(*From the "Christian Union," N. Y., May 22.*)

The *American Agriculturist* is to be congratulated on the evident signs of progress and prosperity which are found in its pages. It represents the best experimental and writing talent in the line of Agriculture in this country.—The *Cortland* (N. Y.) *News* says: Every farmer, gardener, and horticulturist ought to take the *American Agriculturist*, the highest authority pertaining to their calling.

Friends of Agriculture.

Mr. Lawson Valentine, who for some months has been familiarizing himself with agricultural modes and methods in England and France, visiting Lawes and Gilberts' establishment, and other interesting points, will return to the United States with a rich store of knowledge to apply to his generous acres at Houghton Farm.

Col. M. C. Weld, the "Among the Farmers" man, true to his title, is now off for a distant fortnight cruise. He goes as far north as Hamilton, Ont., and, swinging to the southward, will return with a grip-sack full of notes by the way for his host of admiring readers. Col. Weld has a great fondness for fine farm animals, and discovers more defects in a herd than most men. He, however, does not let a "good point" pass unnoticed or unpraised.

Dr. Charles H. Shinn, is one of California's young horticultural men who believe they can so mingle literature with out-door life as to make it profitable in more senses than one. Among the leaders of the fruit interests in the Golden State, he left his western home and spent last year in John Hopkins' University in the study of language, to become the better able to write clearly and well upon his favorite horticultural subjects. He promises to give our readers the results of his added experience and study.

Dr. Manly Miles, Professor of Agriculture at Amherst Agricultural College, made us a pleasant call, during which we learned that he intends to spend a portion of his vacation in the Michigan "Peach Belt," studying the important subject of yellows in the peach. Dr. Miles has thoroughly equipped himself with microscopes for this difficult task, and we hope before the year closes to give our readers some more light upon a question, that now is as dark as it is vital to the fruit growers of the Peninsular State.

Mr. A. W. Stuart, of Australia, is now visiting the United States, and studying the subject of silos and ensilage, with a view of introducing these methods of preserving fodder, into his own country, in their perfected forms. We have taken pleasure in directing Mr. Stuart to some of our most successful farmers, who are feeding ensilage almost exclusively to their large herds. It is justly a matter of no little pride to Americans, that borrowing a method from an old European country, we have so perfected it, as in a few years time to become the teachers of the whole world.

Cyrus H. McCormick, who made the first successful Reaper, has now closed his life-work at the advance age of seventy-five. It is but a little over thirty years since that strange looking machine, at the first Worlds' Fair convinced England and all Europe, that reaping by machinery was possible. The influence of this invention upon the agriculture of this country and of the world is incalculable, and it is gratifying to know that unlike many inventors who have benefited their fellows, Mr. McCormick received in return something more substantial than thanks. While there are many other and excellent reapers, the name of McCormick will stand as the pioneer of all, and occupies a proud position as one of the benefactors of agriculture.

Rev. E. P. Roe, the writer on small fruits and other topics, having decided to devote his entire attention to literature, pure and simple, has disposed of his Nurseries at Cornwall-on-the-Hudson, to Mr. H. G. Corney, long his confidant, and able first assistant.

Fountain Pumps.—Our nearest neighbor has some fine large cherry trees badly infested with aphides (plant lice), and we have recommended him to get a force pump, and spray the infested leaves and branches with a decotion of tobacco water. He needs the pump for washing the windows of his dwelling, watering the young garden vegetables and flower beds, and for many other purposes. The Fountain Pumps which are made by J. A. Whitman, Providence, R. I., have a world-wide reputation.

A "Farmer's Friend."—A strong, well-made, keen-edged knife, should be the delight of every farmer, as with it one has a ready means of temporarily mending a harness or implement while at work. The ability to shape a wooden pin has often saved a half day for team and man at a time, when any delay might have been disastrous. Let every farmer go armed with a first-class pocket knife kept in good order. Our old patrons, Maher & Grosh, Toledo, Ohio, furnish pocket knives of various kinds, that give satisfaction; their goods advertise the reliability of the makers and dealers.

VICTORIES

The **only** machine that received an award on both Horse-power and Thresher and Cleaner, at the Centennial Exhibition; was awarded the two last **Gold Medals** given by the New York State Agricultural Society on Horse-powers and Threshers; and is the **only** Thresher selected from the vast number built in the United States, for illustration and description in "Appleton's Cyclopedia of Applied Mechanics," recently published, thus adopting it as the **standard** machine of this country. Catalogue sent free. Address

HINARD HARDER, Cobleskill, Schoharie Co., N. Y.

UNEQUALED

ARTIFICIAL LIMBS
MARKS' PATENTS.

With Rubber hands and feet. The most comfortable, durable, and useful. In practical use in all civilized nations. U. S. Government Manufacturer. Established 1858. Large illustrated pamphlet, in English or Spanish, sent free. Also, a **NEW SYSTEM of MEASUREMENT,** by which limbs can be made and sent to all parts of the world with **GUARANTEED SUCCESS.**

A. A. MARKS,
691 Broadway, New York City.

Mammoth Cave,

EDMONSON CO., KY.

On Louisville and Nashville Railroad, Eighty-five Miles from Louisville.

The most interesting natural curiosity in the world! The largest Cavern known!
Cave and Hotel open all the year. For maps, rates, routes, and other information address

W. C. COMSTOCK, Cave City, Ky.

THE OLD RELIABLE HALLADAY
STANDARD WIND MILL
27 YEARS IN USE.

GUARANTEED
Superior to any other make.
17 Sizes-1 to 40 H. Power
Adopted by U.S. gov. at forts and garrisons and by all leading R. R. Cos. of this and other Countries.
Also, the
Celebrated I X L Feed Mill,
which can be run by any power and is cheap, effective, and durable. Will grind any kind of small grain into feed at the rate of 6 to 25 bushels per hour, according to quality and size of mill used. Send for Catalogue and Price-List. Address
U. S. WIND ENGINE & PUMP CO. BATAVIA ILL.

THE DANA
CENTRIFUCAL-GOVERNOR
WINDMILL.

This is the best working, and the most powerful Wind-Engine in the world, because of—*first*, the superior excellence of its self-regulating mechanism, and *second*, the better form and position of its sails. The facts and reasons which support this claim are set forth in our Descriptive Catalogue, Second Edition —1884, for which apply to
The Dana Windmill Co.,
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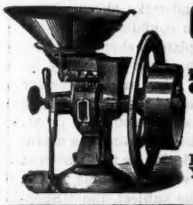

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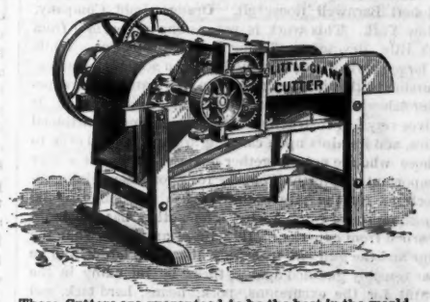

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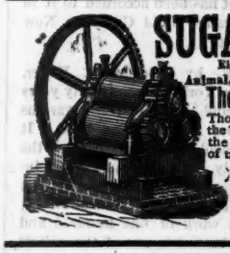

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"Superior Fishing, or the Striped Bass, Trout, Black Bass, and Blue-fish of the Northern States," by Robert Barnwell Roosevelt. Orange Judd Company, New York. This work is not, as one might infer from its title, devoted to fishing in Lake Superior. While a large share of it is occupied with an account of an excursion to that interesting region, it treats of the superior fishes above named wherever they may be found. It gives very full instructions for the making of artificial flies, and its hints upon camping are most useful even to those who are not altogether novices. There is a very important chapter on Cookery for Sportsmen, giving directions for the preparation of fish and game in the most approved camp style. The author has no doubt learned from experience, that there are times when the line and the gun fail to supply the camp larder, and he has sensibly guarded against these, by including in the outfit for the excursions, pork, beans, hard-tack, and other well known camp luxuries, and talks learnedly about cooking them. As an author, Mr. Roosevelt has something to say, and a most genial method of saying it. He describes the grandeurs of Lake Superior, and the incidents of the excursion in a clear, vivid manner, and gives directions for preparing "Fried Mush" in a style, that sets the reader's appetite on edge. The work is a model of its kind, with not a dull line in it. The graces of a most charming style so elevate a common-place subject like chowder, as to make it seem to be something worth living for. Many such works are tedious from the egotism of the writer, a fault of which Mr. Roosevelt can not be accused. A capital work to take upon a summer excursion; no matter where one goes to pitch his fishing camp, he will find it a helpful companion. Price, post-paid, $2.00.

"Our Friend, the Dog," is the taking title of a most attractive book, by Gordon Stabics, C. M., M. D., etc. London, England. The sub-title informs us, that it is "A Complete Guide to the Points and Properties of all known Breeds, and to their Successful Management in Health and Disease." The author has one important qualification for his task—he is in love with his subject, and writes so earnestly as to inspire his reader with a similar love. He invests the most common-place matters with a peculiar charm, and while anecdote and poetry are brought in to embellish the pages, there is a solid substratum of fact, and such a vein of common sense pervading all he tells us about dogs, and how to manage them, that he inspires us with confidence in his teachings. The characters of the numerous breeds are sharply given, and besides the topics usually treated of in such works, he gives much needed information on points generally overlooked by authors who write about "Our Friend, the Dog." One of these of growing importance in this country, is useful hints about exhibiting at Dog Shows, and some excellent advice is given to the managers of Shows, which indicates that human nature is much the same on both sides of the Atlantic. A number of chapters are devoted to "Clubs." These are very full of just the information needed by those who would organize Dog and Kennel Clubs in this country. The Constitutions and Rules adopted by the leading Associations of England will be very useful. The work is abundantly illustrated by engravings, not only of dogs, but of the various kennels and other appliances. The leading breeds are illustrated to a great extent by portraits of noted representatives, a historical sketch being given of the animals in a chapter on illustrations.

The work will no doubt occupy a similar place in the literature of the subject that has been accorded to it in England. Published by Orange Judd Company, New York. Price, post-paid, $3.00.

Practical Forestry, by Andrew S. Fuller. Orange Judd Company, New York. Some twenty years ago Mr. Fuller wrote a hand-book upon the various methods of propagating our native forest trees. It was intended to be a small pamphlet, giving the methods of propagation only. His then publishers induced him, against his better judgment, to extend the work in order that it might be issued as a bound volume, and it finally appeared as a work of one hundred and eighty-eight pages. While the work, one of the earliest upon forest tree culture, was the most useful, indeed the only one available, it was so incomplete, that the author was from the outset dissatisfied with it, and determined that whenever it should be practicable, to issue a work on forestry more in keeping with the importance of the subject. The obstacle to its publication having been removed, Mr. Fuller has not added to and enlarged his earlier book, but replaced it by an entirely new work, entitled "Practical Forestry." Especial attention has been given to the various methods of propagating forest trees. Indeed this is the most important matter relating to forest tree culture at present. Our supply of timber and fuel is not to be increased by large plantations by companies, etc., but by individual effort. Upon nearly every farm, in the older States at least, there is more or less land suited to forest tree culture—and to nothing else. If every farmer owning such land could be induced to plant it with trees, a long step would be taken in the improvement of our supply of timber and fuel. But the average farmer, while he will admit the force of all the arguments in favor of planting trees, will rarely devote the few dollars needed to purchase the young stock to make a plantation, and nothing is done. If the farmer finds that he can, without any money outlay gather seeds or procure cuttings from which he can raise a stock of young trees for planting upon his otherwise useless land, he will then take a different view of tree culture. It is for this reason that we regard the propagation of trees a most important part of a work on forestry. Show farmers that they can raise trees for planting without money outlay, and they will be willing to undertake it. Mr. Fuller, from his wide experience in raising young trees of all kinds, is abundantly able to teach the readiest methods, and to point out whether, for a given kind, it may be most readily propagated from seeds, by cuttings, by grafts, or by other methods. All our useful native forest trees, and a few foreign ones are noticed in the work. A description, sufficient to allow one to identify the tree is given of each species, the methods by which it may be best propagated, its uses, etc., make this a most useful hand-book for the farmer, no matter in what part of our wonderfully diversified country his lot may be cast. In press. Price, post-paid, $2.00.

The Shepherd's Manual, a Practical Treatise on the Sheep, Especially Designed for American Farmers, by Henry Stewart. Illustrated. A new Edition, revised, enlarged, and brought up to date by the Author. Orange Judd Company, New York. Mr. Stewart's "Shepherd's Manual" first appeared about eight years ago, and at once took its place as the leading work upon Sheep Husbandry. Unlike the American works which preceded it, it was not devoted to any particular breed, but to sheep. Nor was it addressed to the Sheep-growers of any one locality, but to those of the whole country. That a work with such a wide scope should meet with a correspondingly wide circulation, was hoped rather than expected. A new edition was called for at the end of two years, and that is now followed by the present edition. The principal new matter here added relates to the localities available for sheep ranges, and in this the most recent knowledge is presented. No book can supply the lack of common sense, but one with this essential outfit, can, by the aid of the teachings of the present work, undertake sheep-raising in any locality he may prefer with confidence of a successful result. One who contemplates a shepherd's life, should first decide which branch of the husbandry he will adopt. If he proposes to raise early lambs for market, he will select a very different locality from one who looks to the clip of wool as his source of profit. This work will both aid in the decision, and be a useful guide in the management of the flock. In the treatment of the various diseases to which sheep are liable, and in all other matters relating to the subject, the "Shepherd's Manual" is by far the most complete and useful book thus far offered to the American farmer. The keeping of a small flock of sheep as a part of a mixed husbandry, is properly becoming more frequent. As destroyers of weeds, and as improvers of the soil, their true value is being appreciated. Besides these, their use in supplying the farmer's table with excellent food, is an important reason for keeping them, and small flocks are becoming more common. Those who keep sheep on a small scale, or a large one, will find Mr. Stewart's work a useful guide. Price, post-paid, $1.50.

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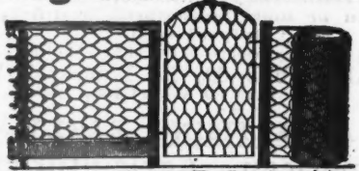

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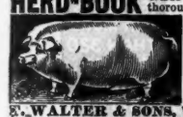

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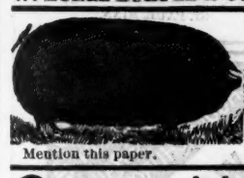

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